

FIG. 1A

09855851.051601

09855851.051601

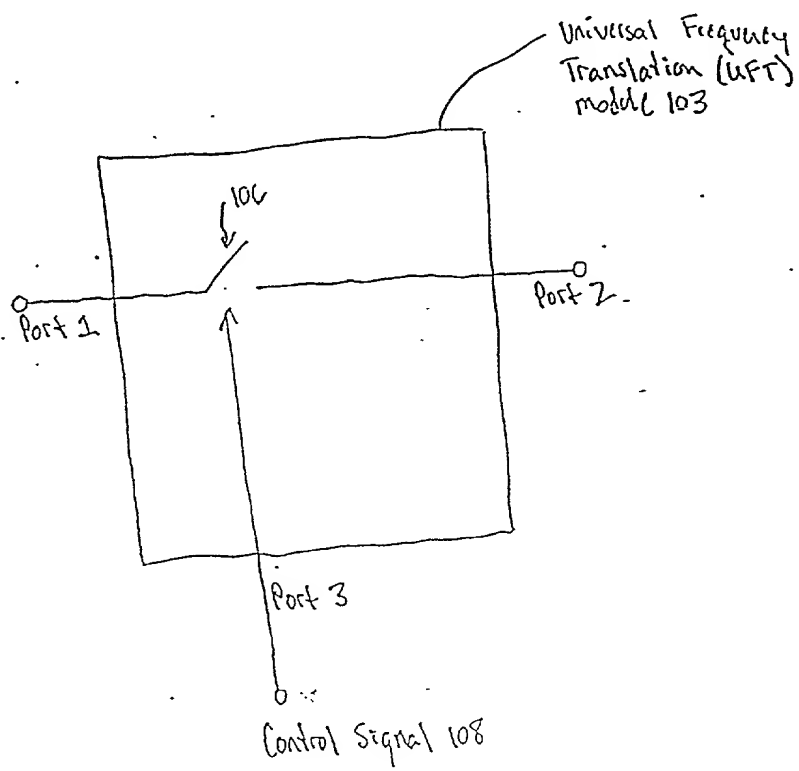


FIG. 1B

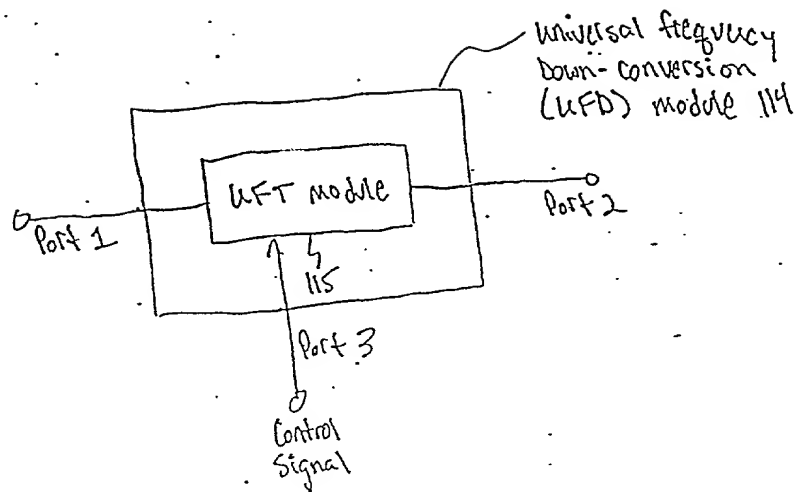


FIG. 1C

09855851.051601

09853851.051601

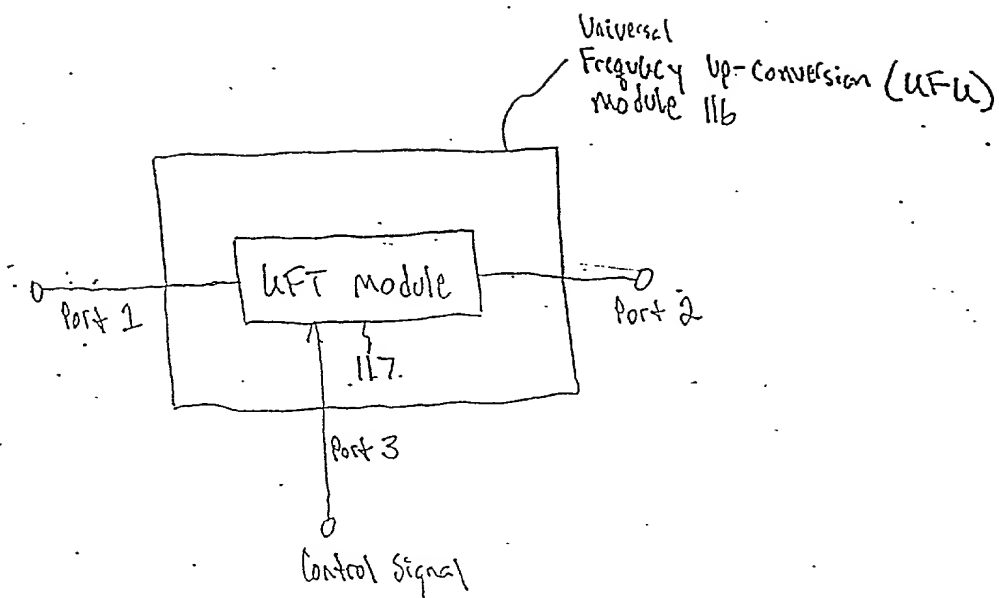


FIG. 1D

Universal Frequency
Translation (UFT)
module 202

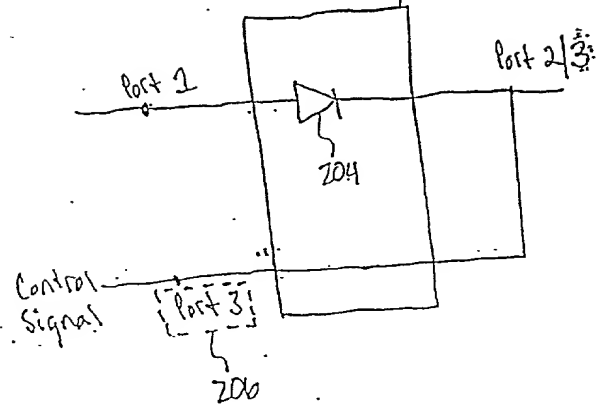


FIG. 2

3

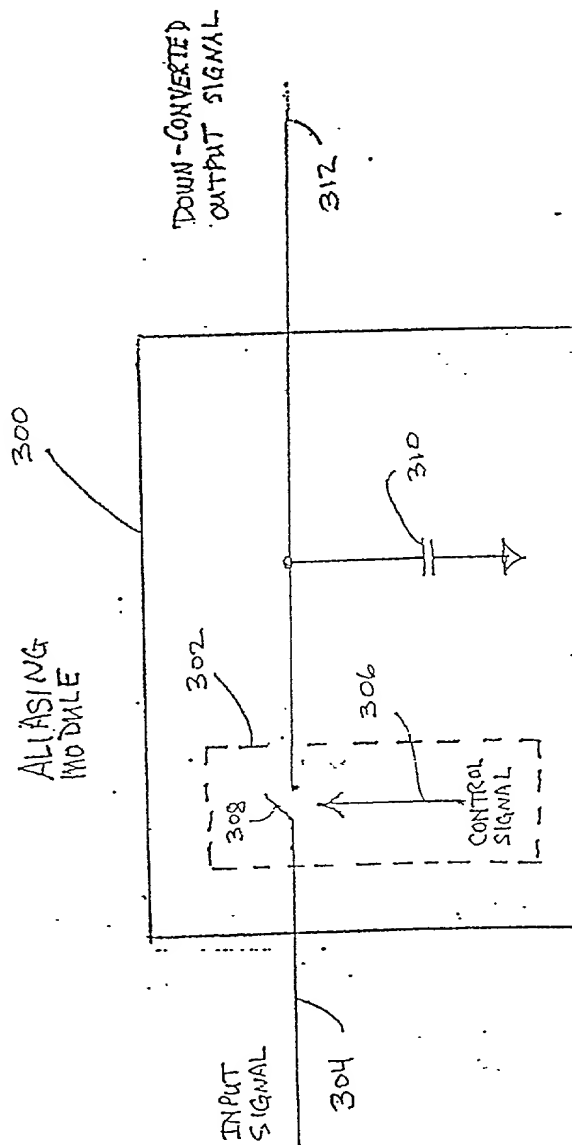


FIG. 3A

00005551.051601

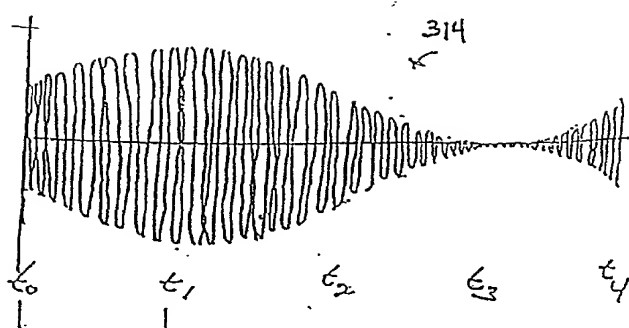


FIG. 3B

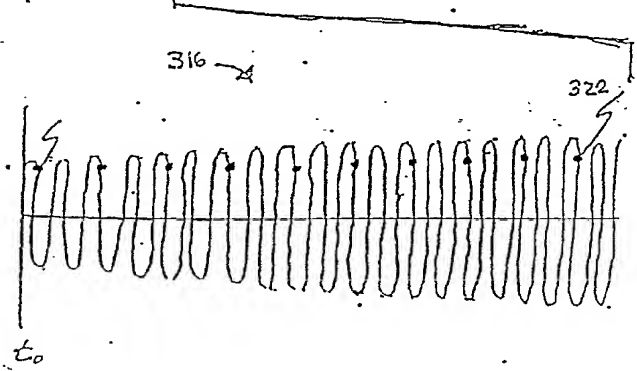


FIG. 3C

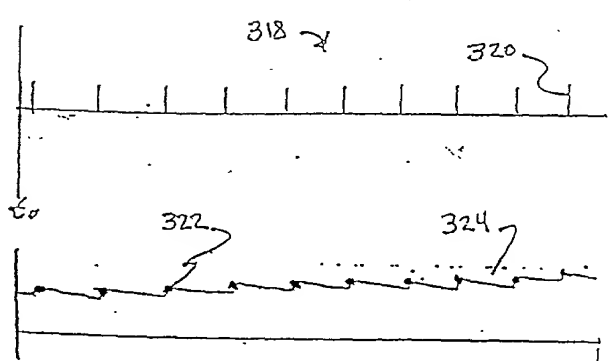


FIG. 3D

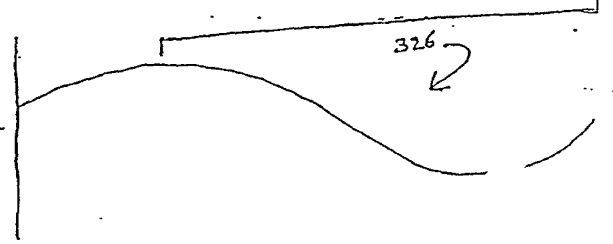


FIG. 3E

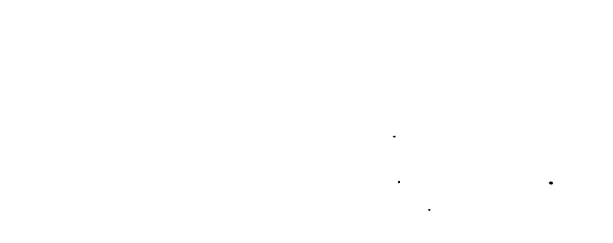


FIG. 3F

3

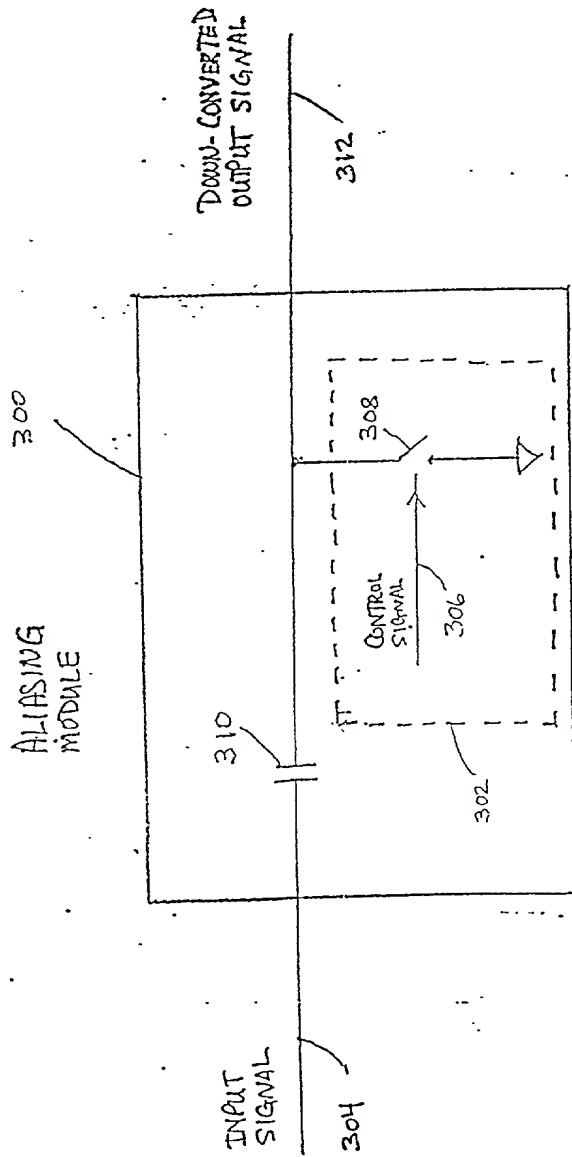


FIG. 3G

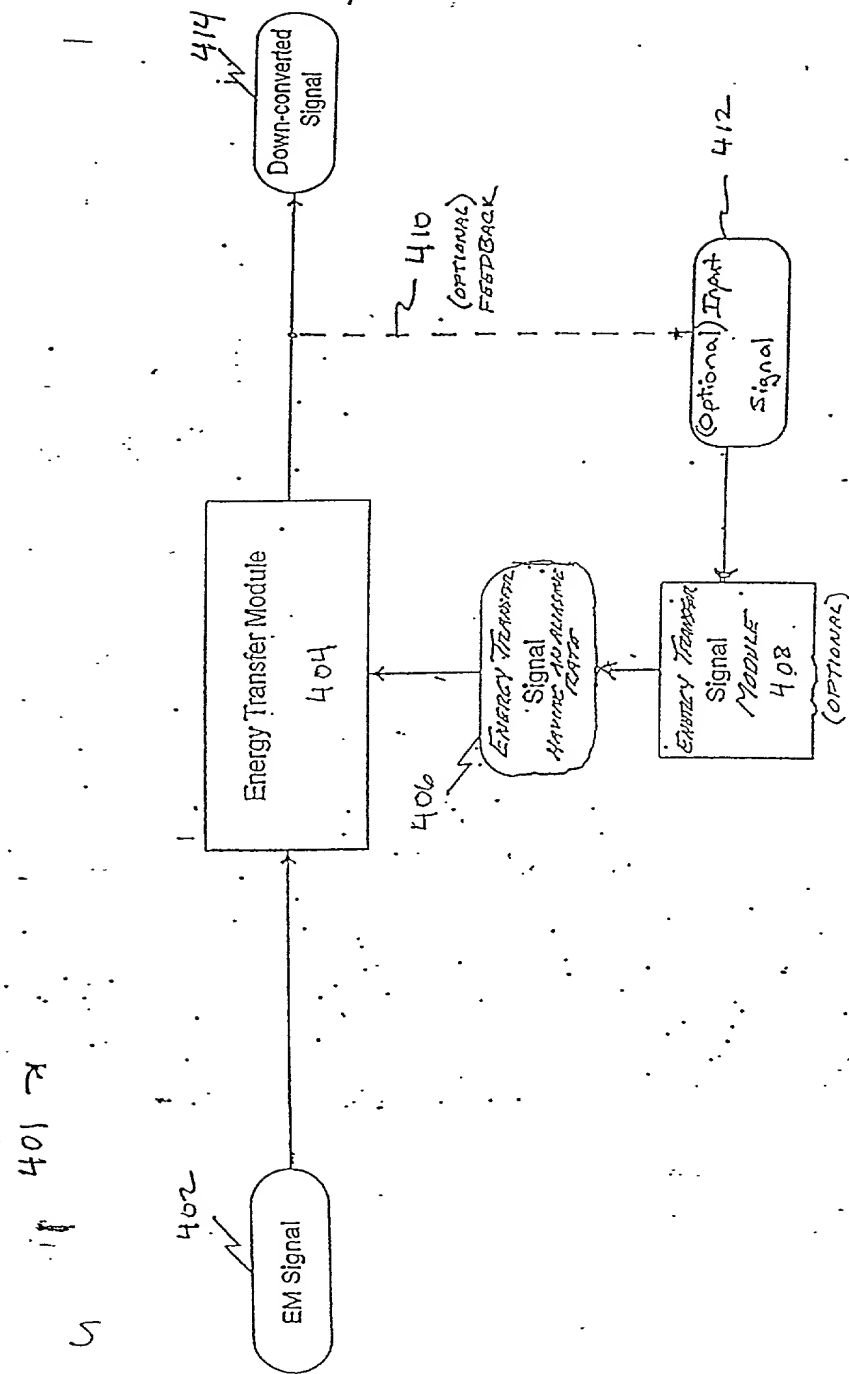


FIG. 4

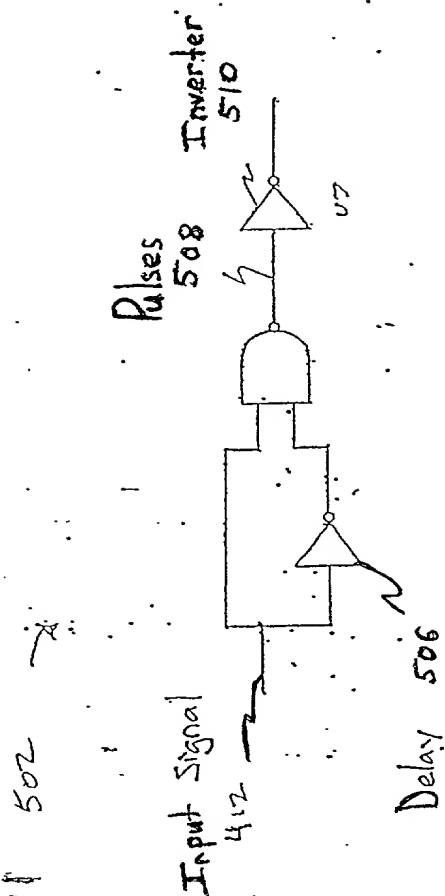


FIG. 5

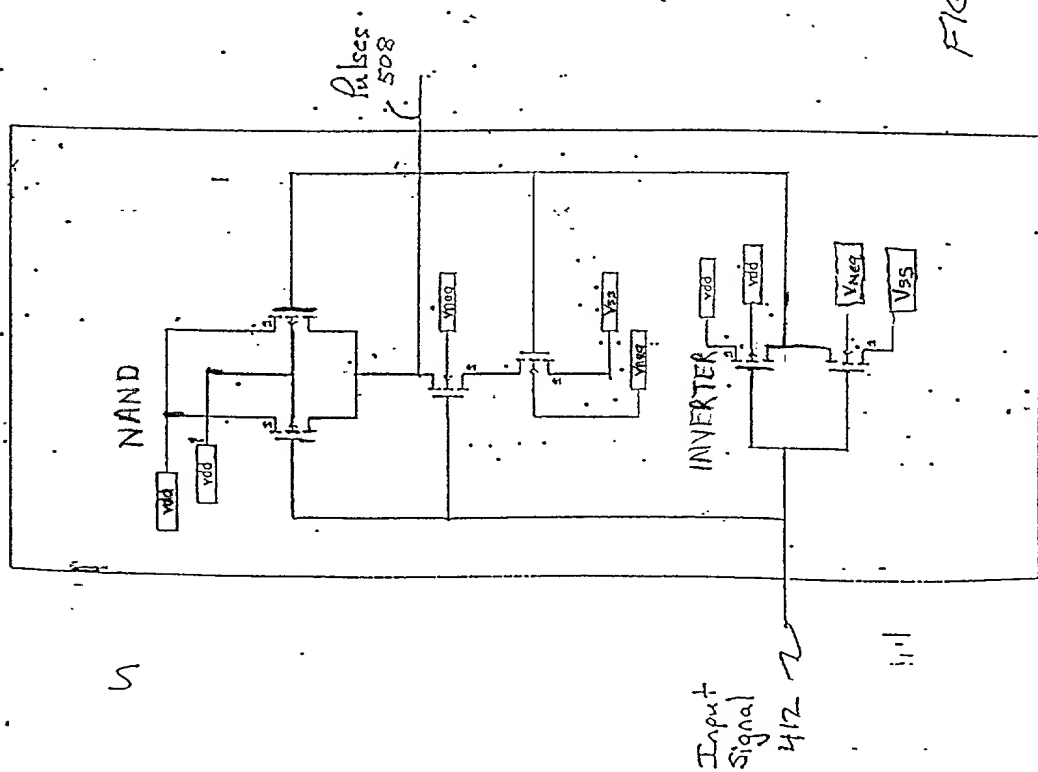


FIG. 6A

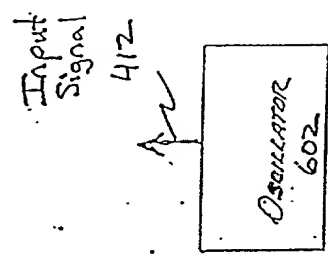


FIG. 6B

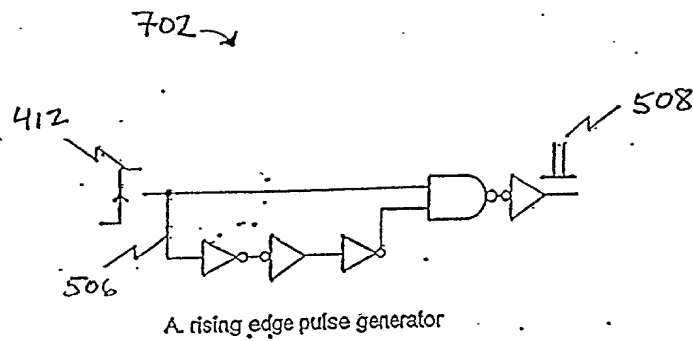


FIG. 7A.

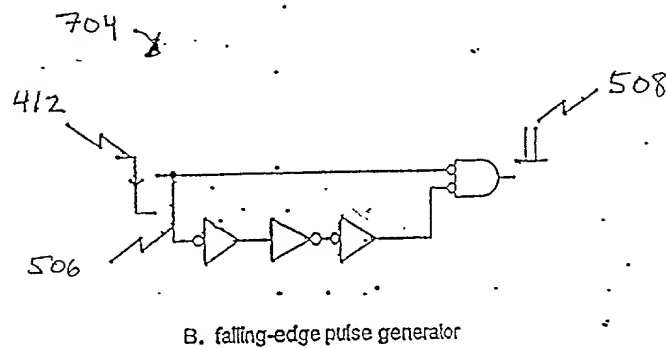


FIG. 7B

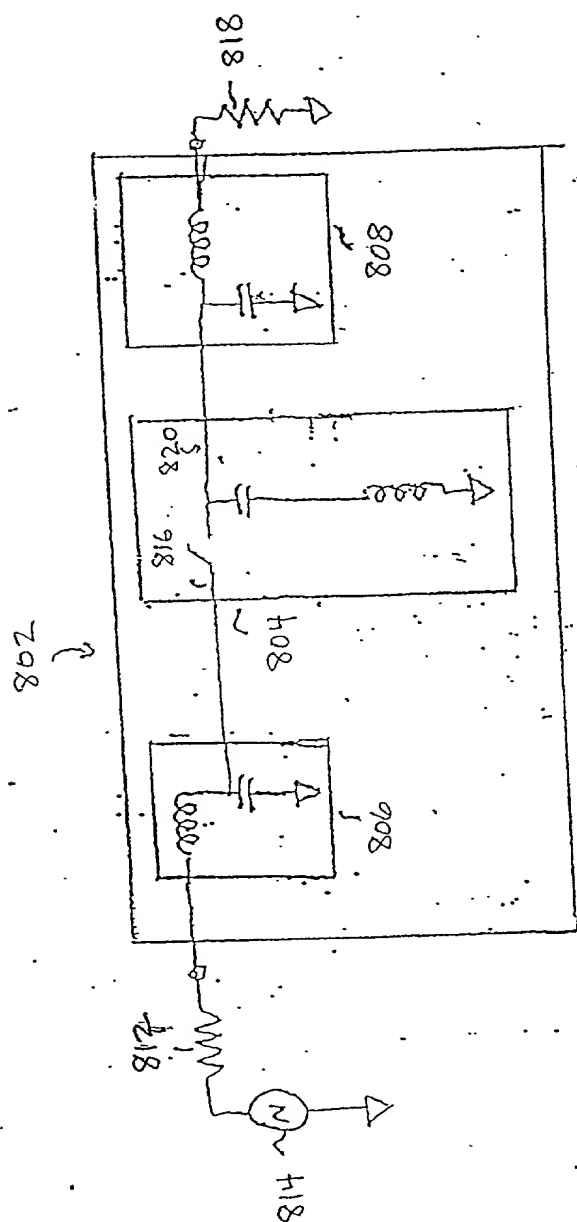


Fig. 8 Impedance Matched Aliasing Module

09855854.054604

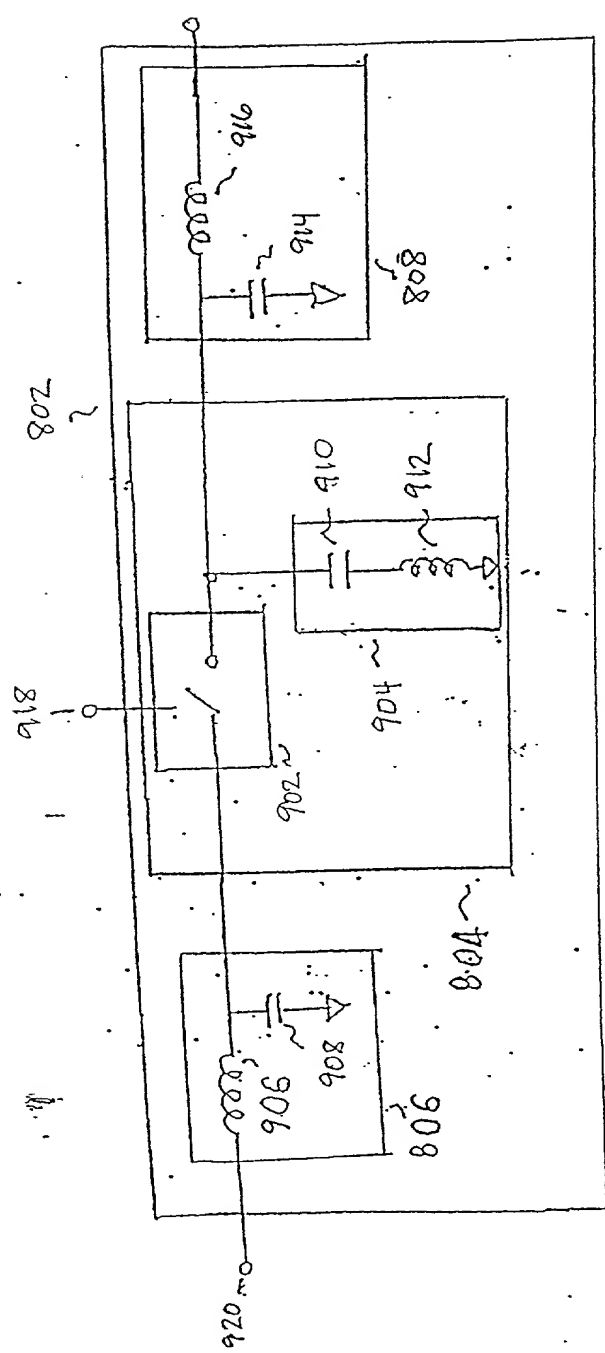


Fig 9 - Aliasing Module

Universal Frequency
Up-Conversion (UFU) module 1000

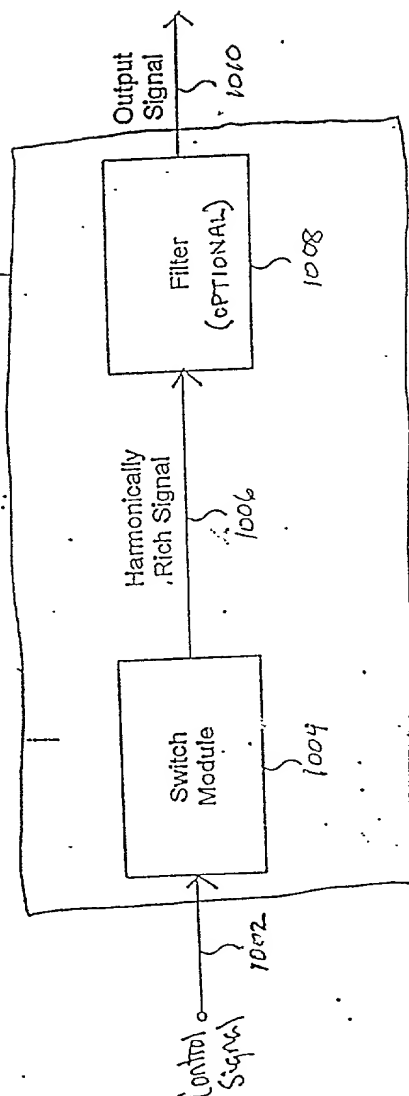


FIG. 10

W

Universal Frequency
Up-conversion (UFU) module 1101

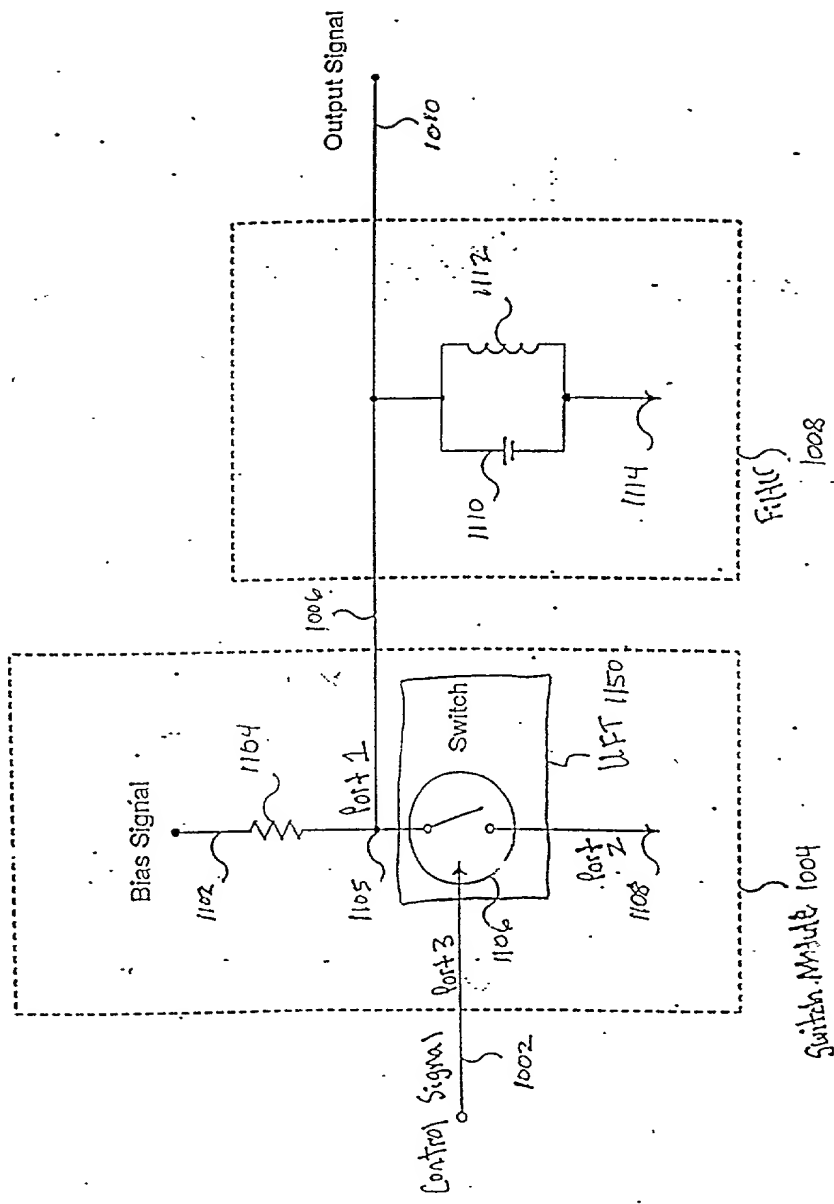


FIG. 11

Universal Frequency
VQ-Conversion
(UFV) module 1290

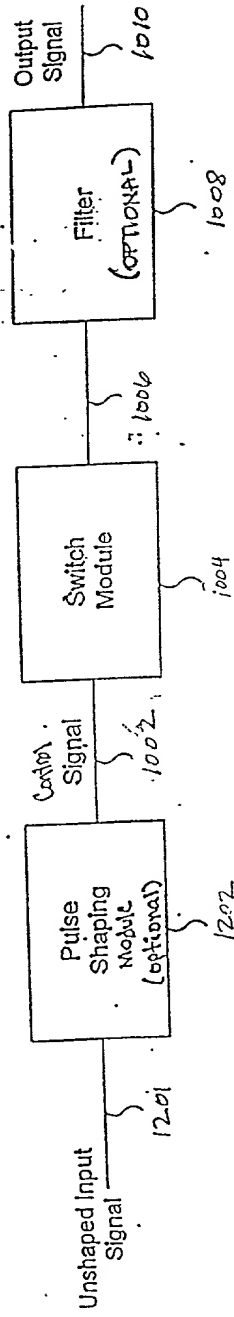
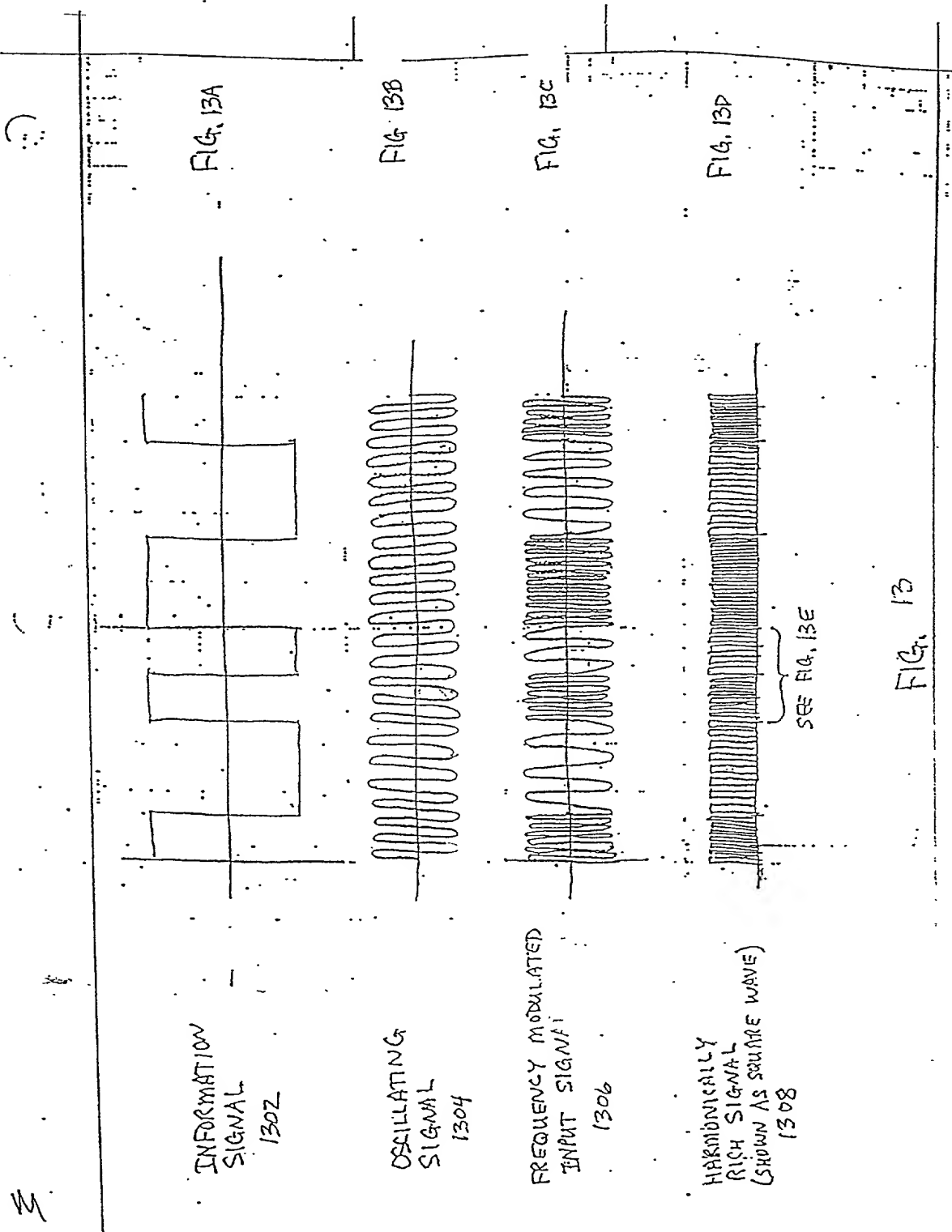


FIG. 12



2

EXPANDED VIEW OF
HARMONICALLY RICH
SIGNAL 1308

FIG 13E



1310
SEE FIG. 13F
1312

HARMONICS OF
SIGNAL 1310
(SHOWN SEPARATELY)

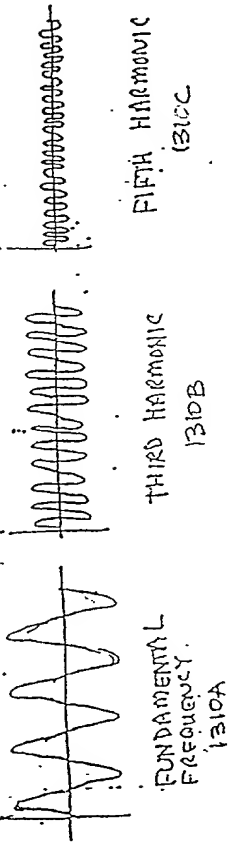


FIG 13F

HARMONICS OF
SIGNAL 1312
(SHOWN SEPARATELY)

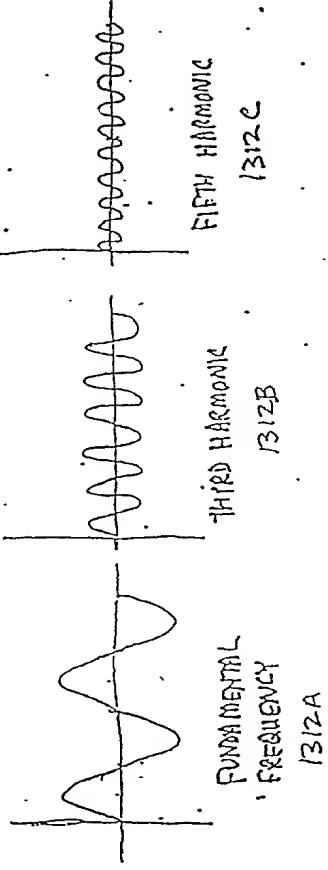


FIG 13G

FIG. 13 (cont.)

HARMONICS OF
SIGNALS 1310 AND
1312, (SHOWN
SIMULTANEOUSLY BUT
NOT SUMMED)

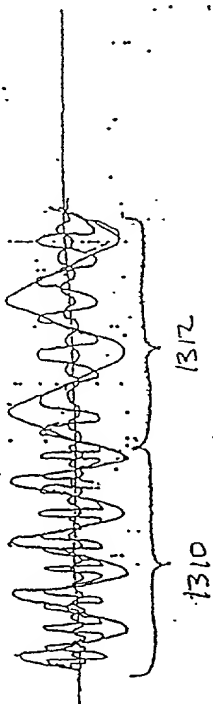


FIG. 13H

FILTERED
OUTPUT
SIGNAL
1314

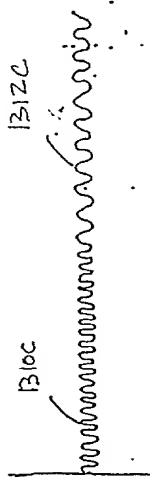


FIG. 13I

FIG. 13 (cont.)

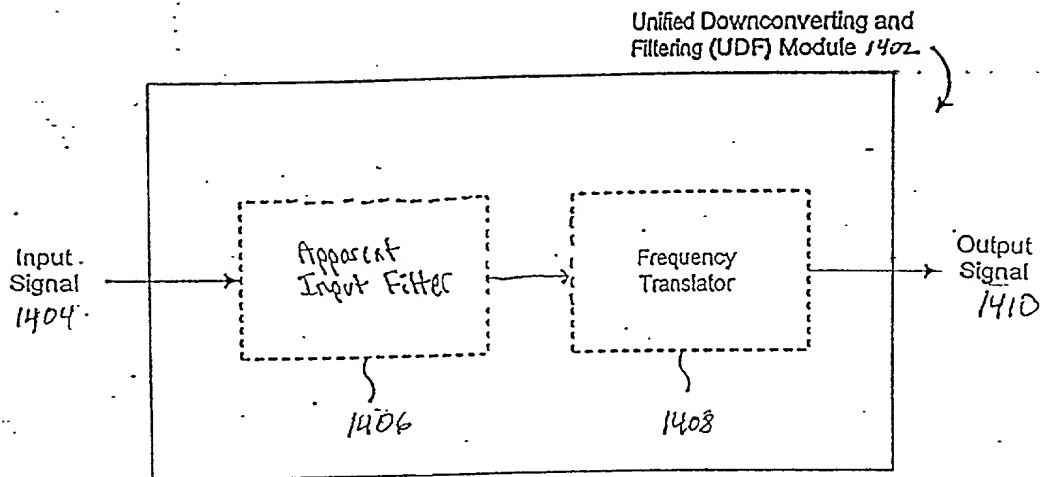


FIG. 14

m

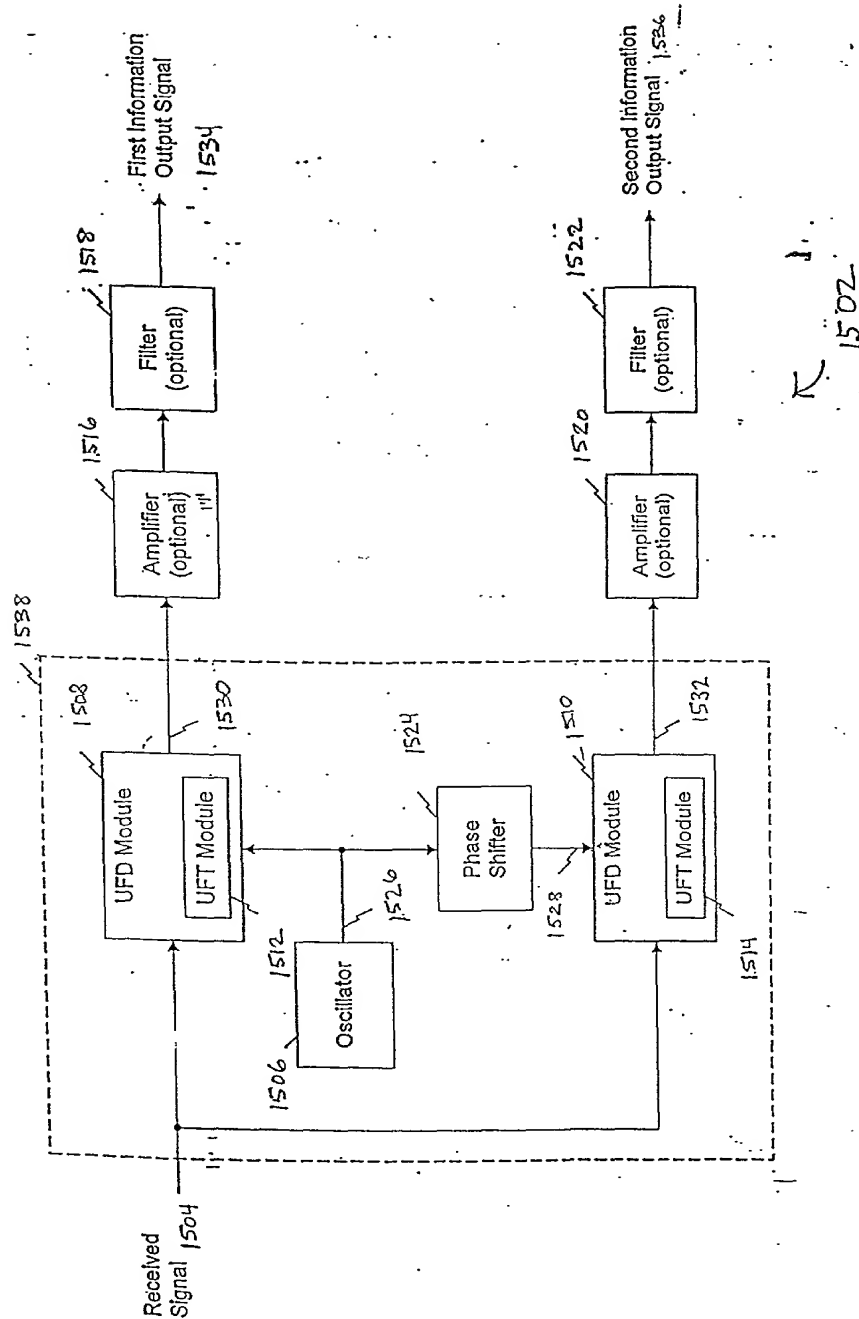


FIG. 15

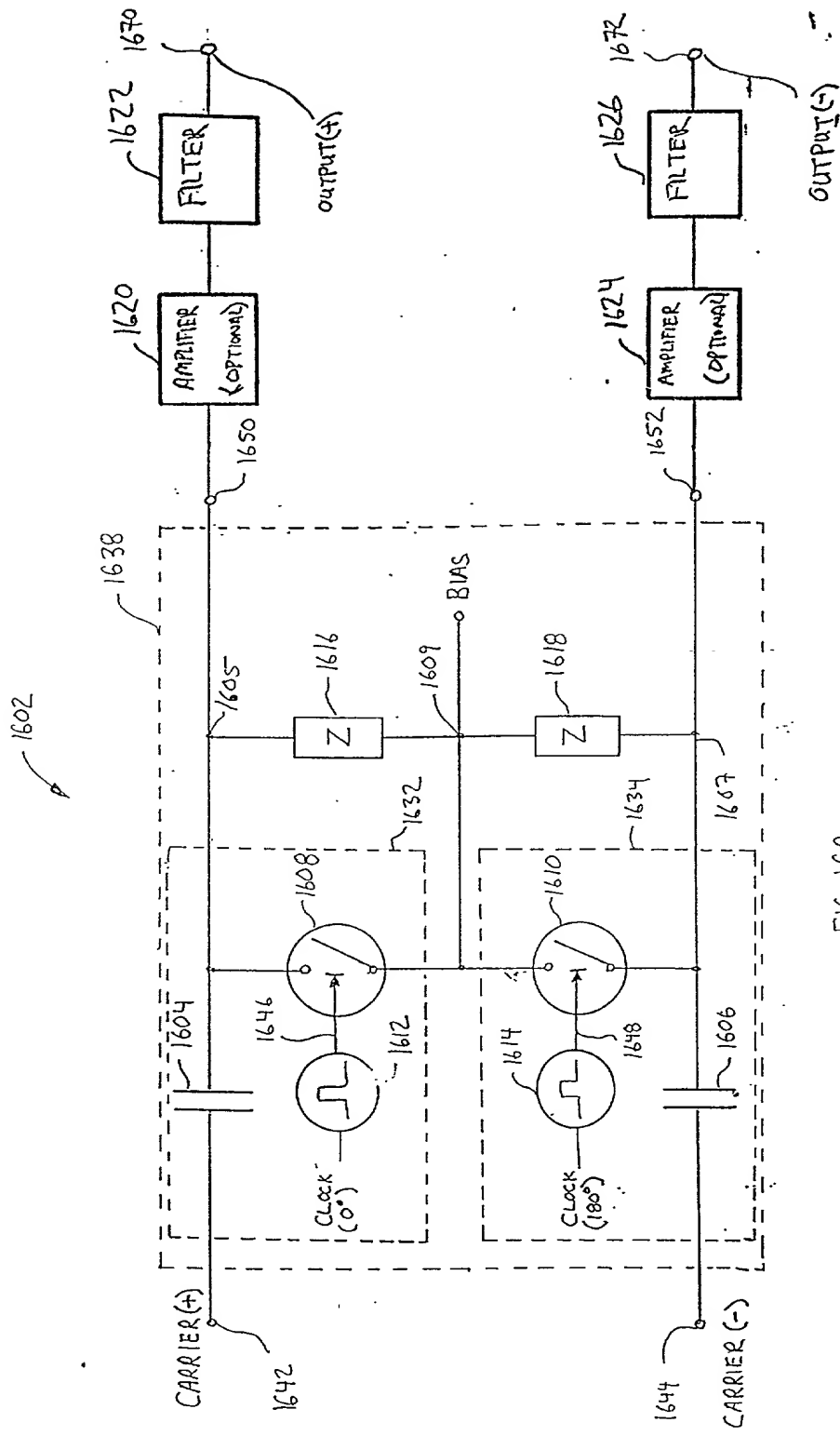


FIG. 16A

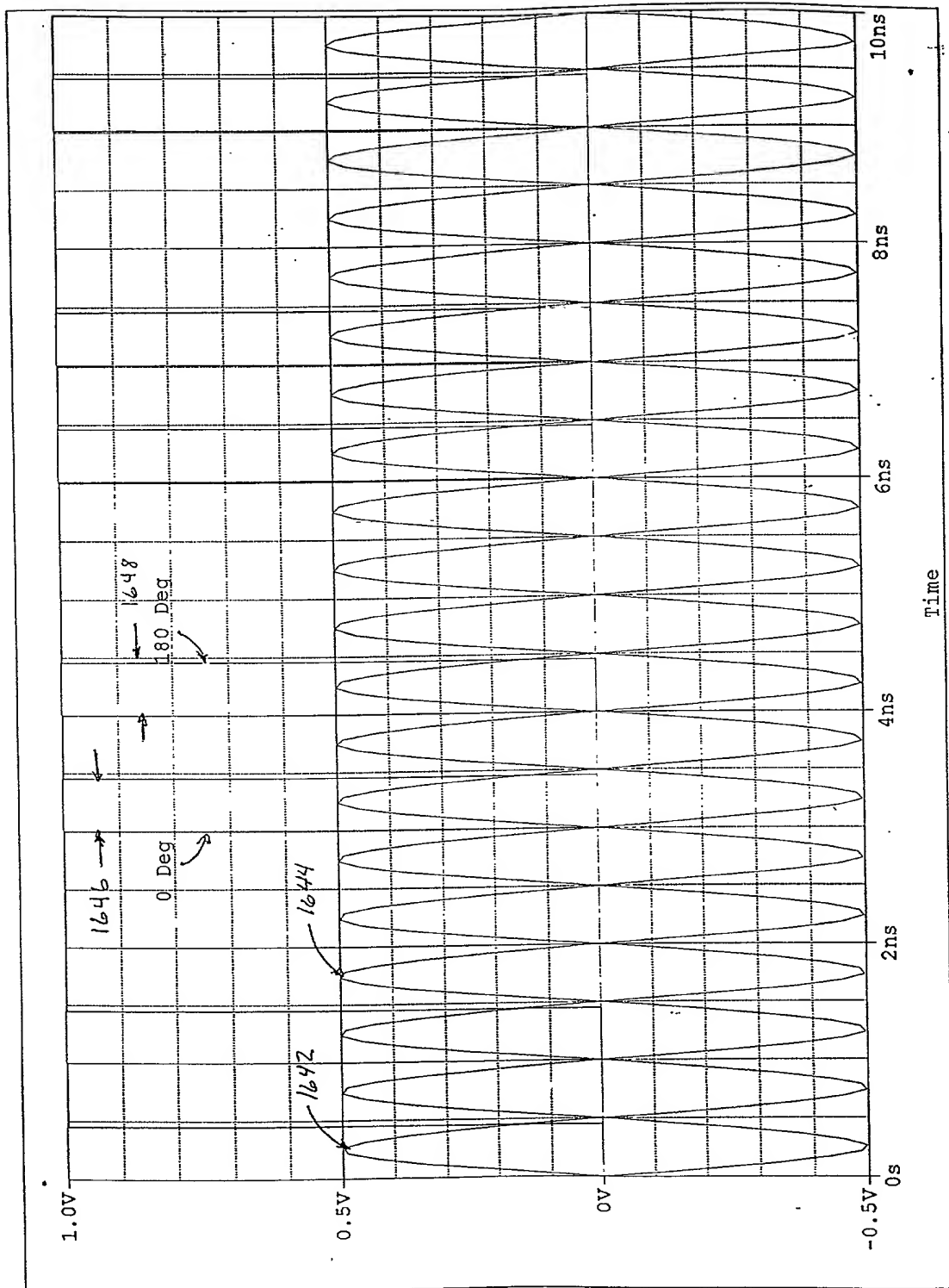


FIG. 16 B

093551 15855860

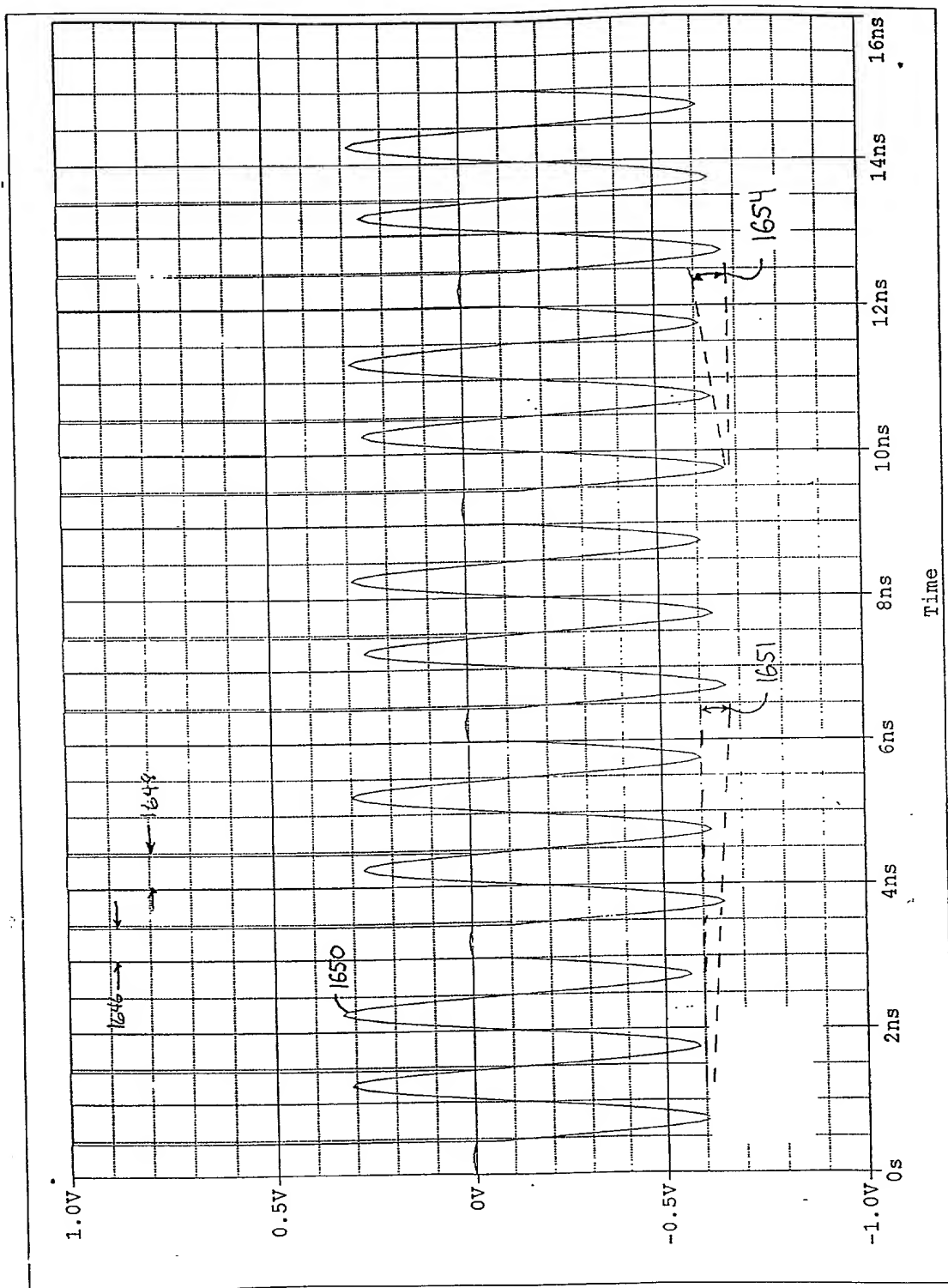


FIG. 16C

TOPF50" 15255850

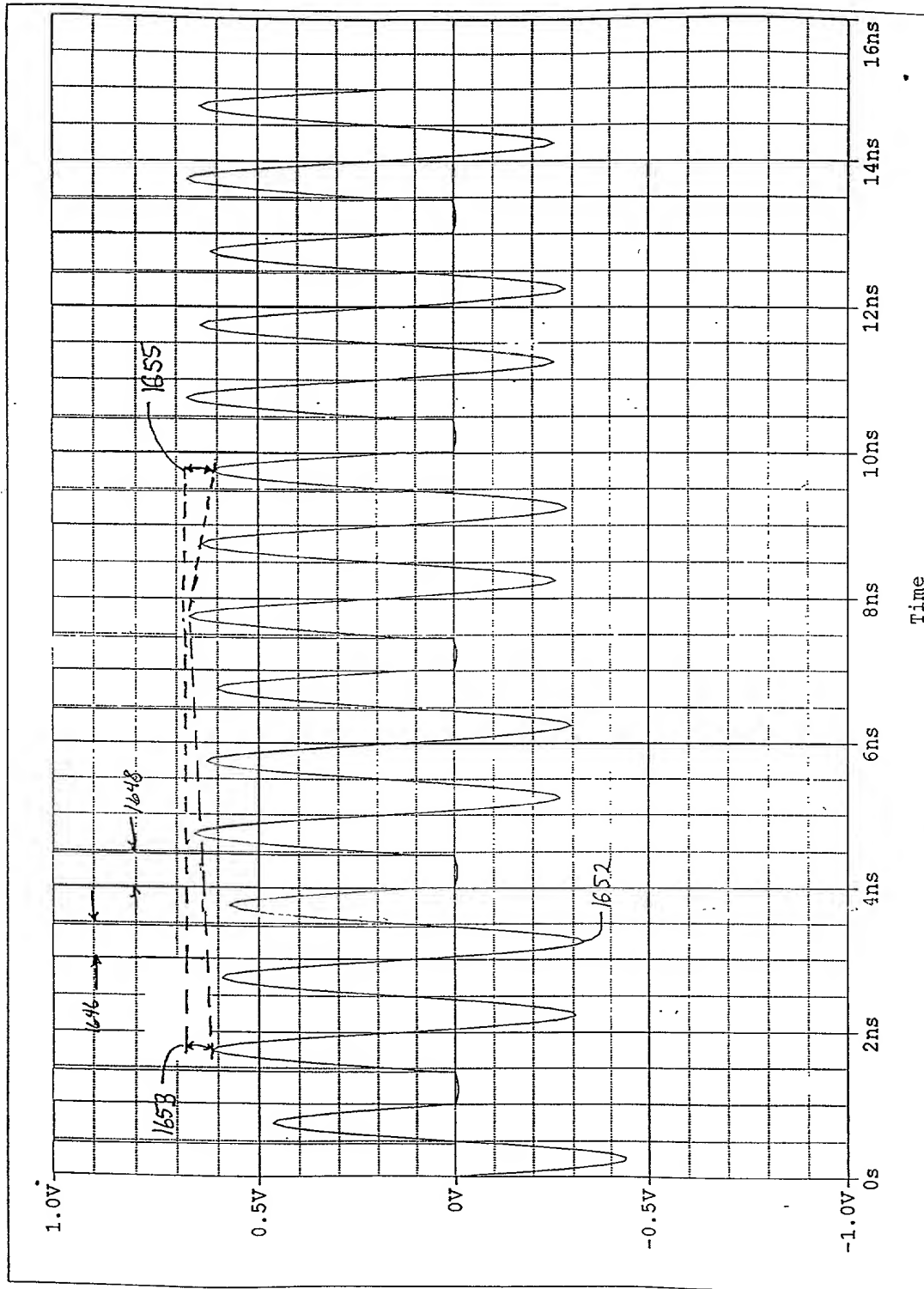


FIG. 16D

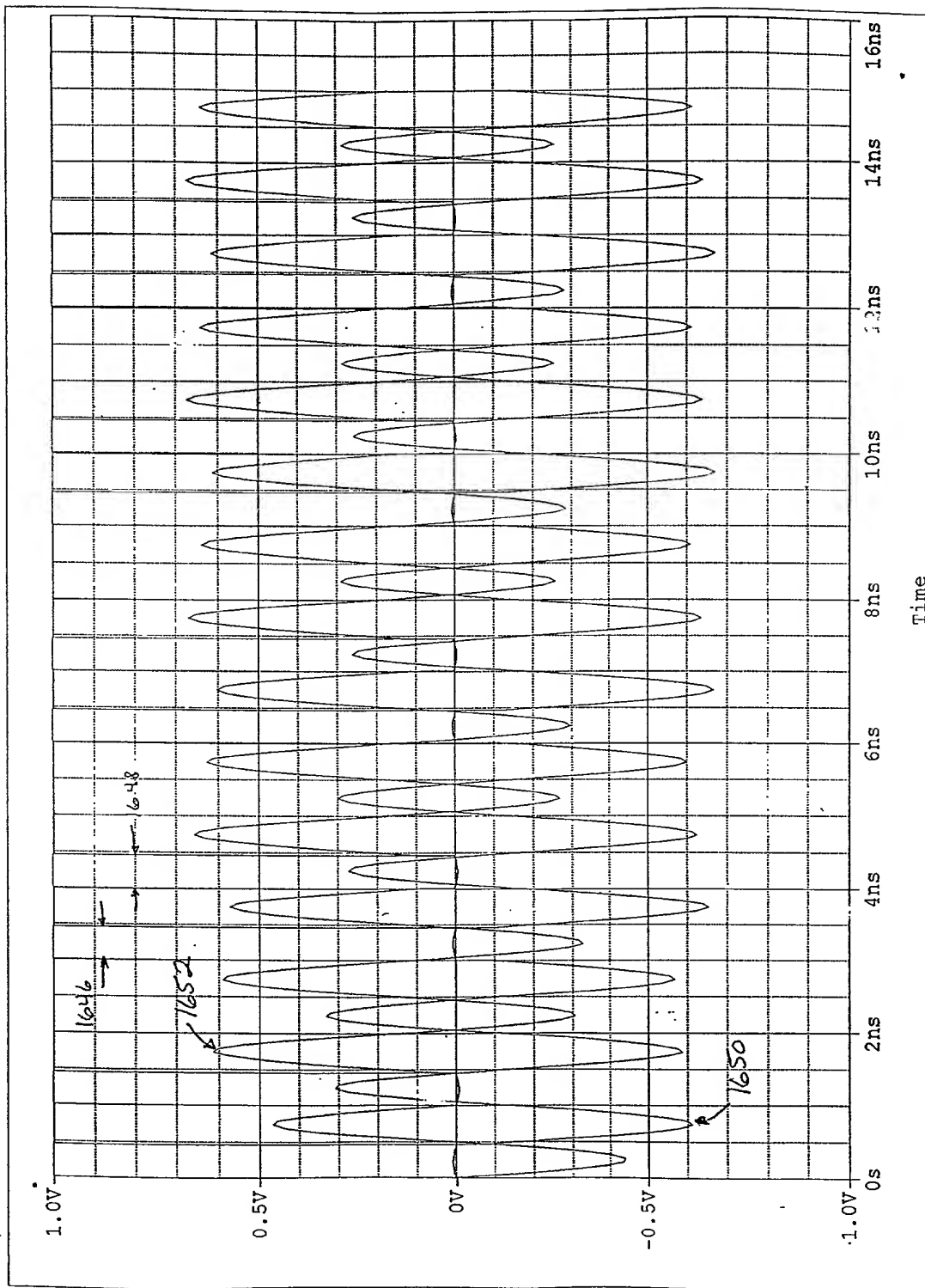


FIG. 16 E

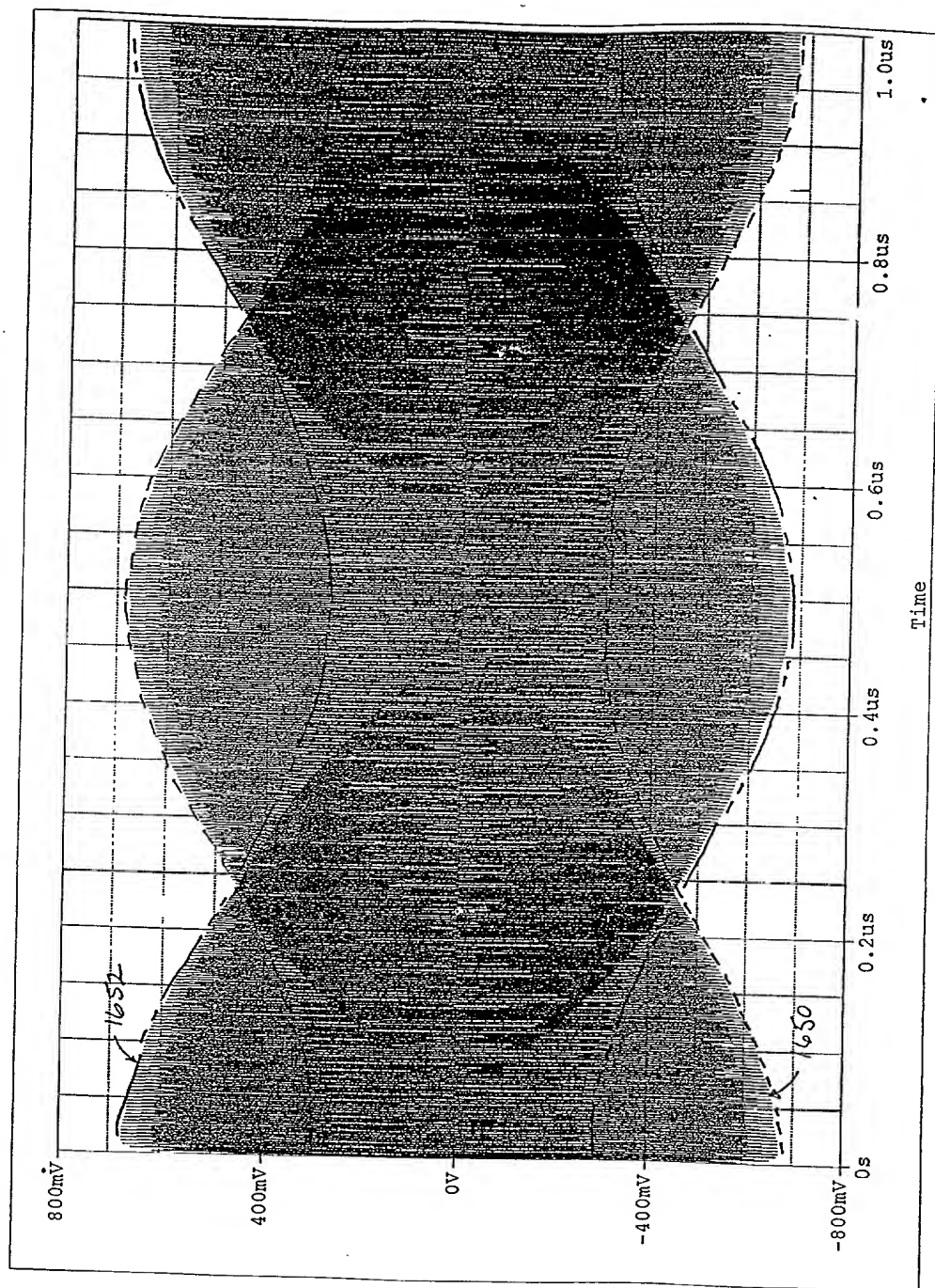


FIG. 16 F

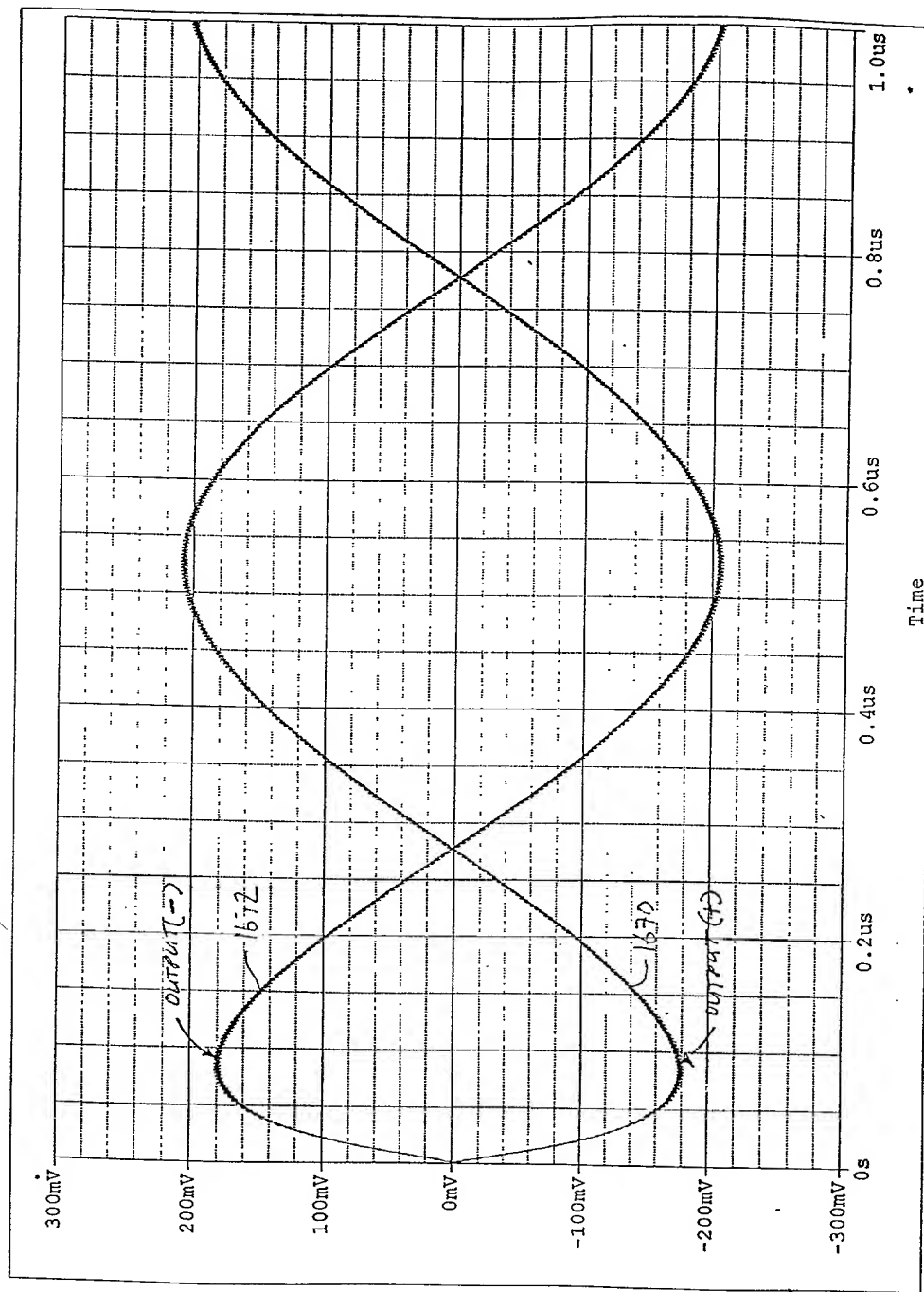


FIG. 16 G

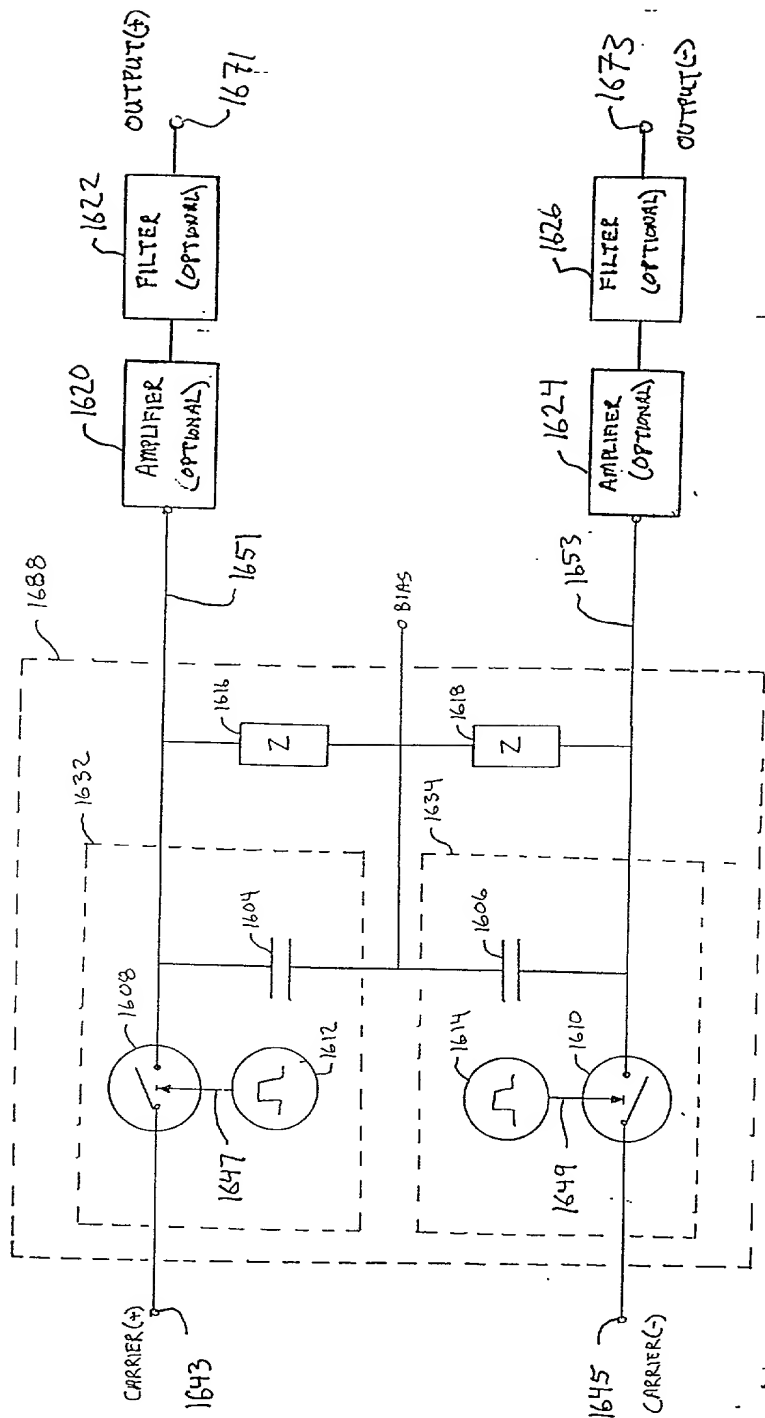


FIG. 16H

109150" 15555860

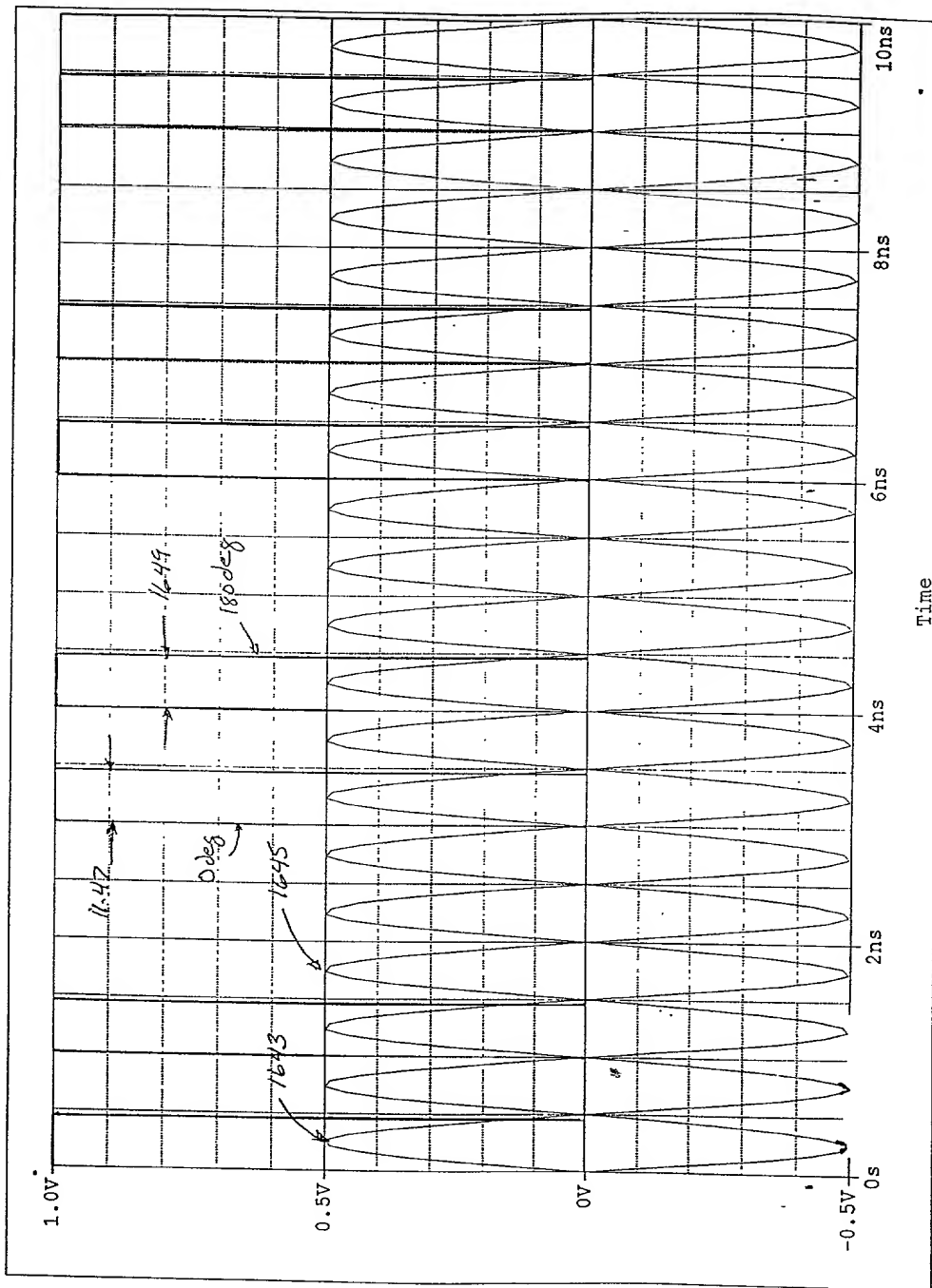


FIG. 16I

109150" 15855860

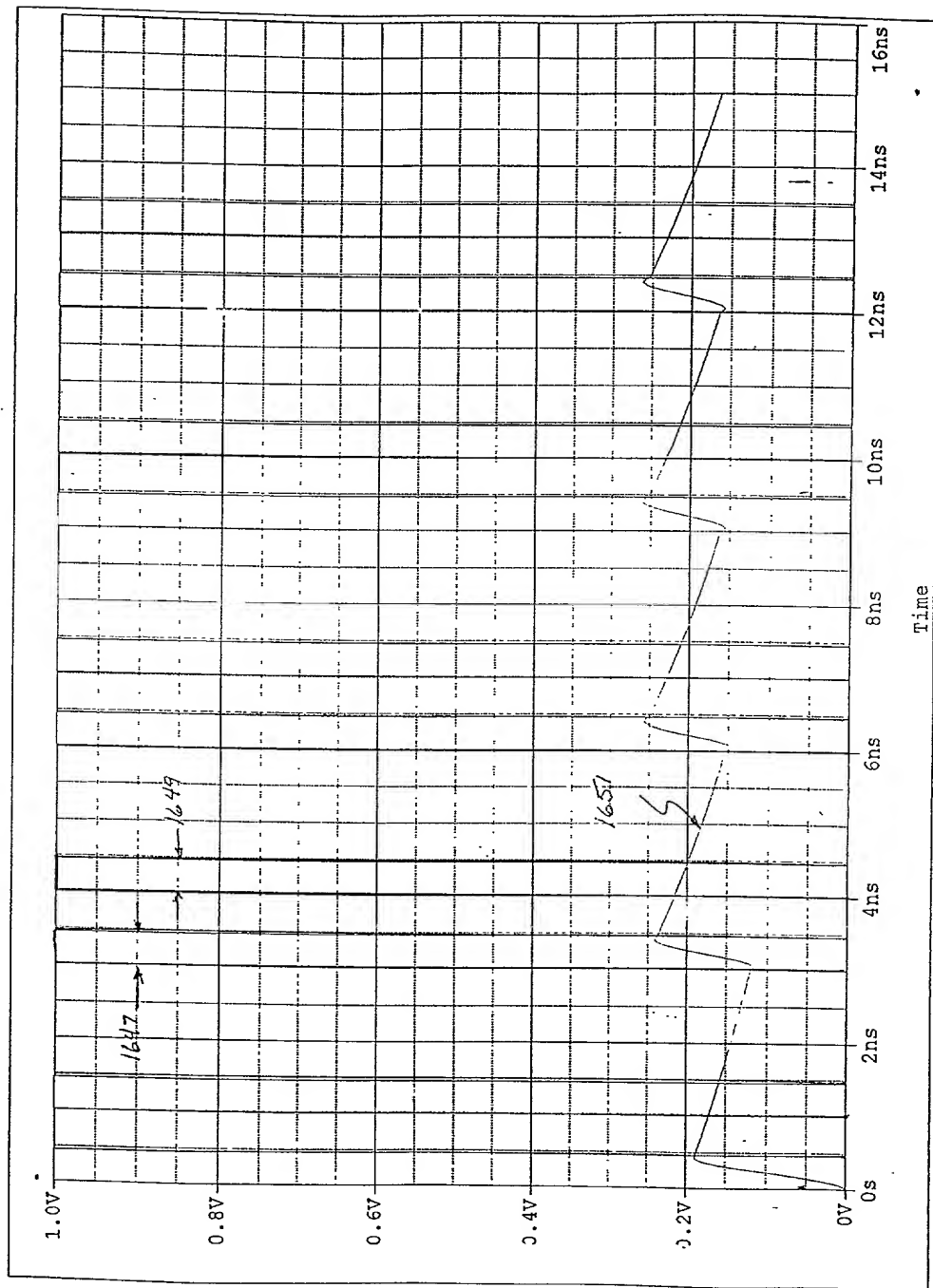


Fig. 16J

100T50" T585860

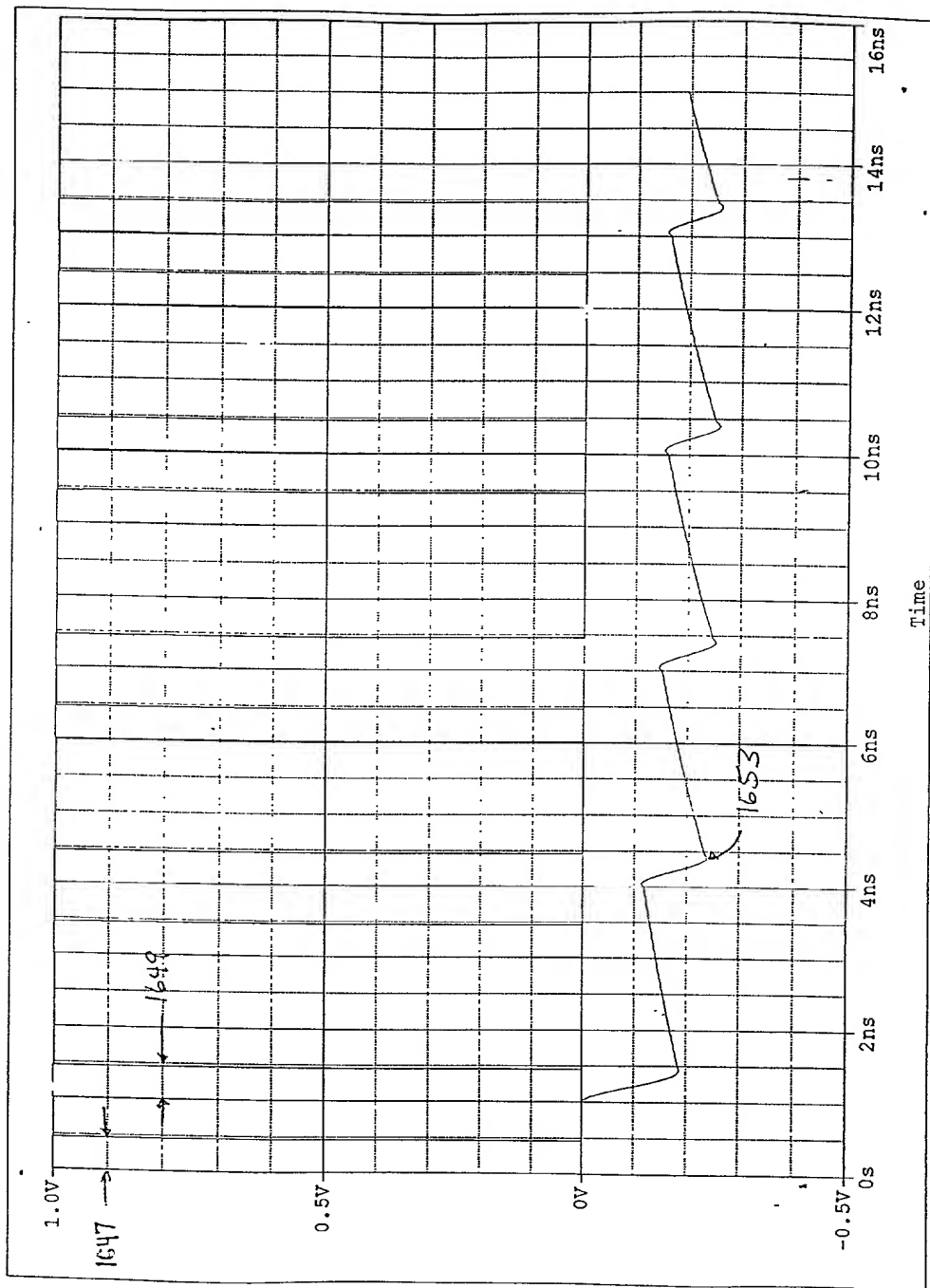


FIG. 16K

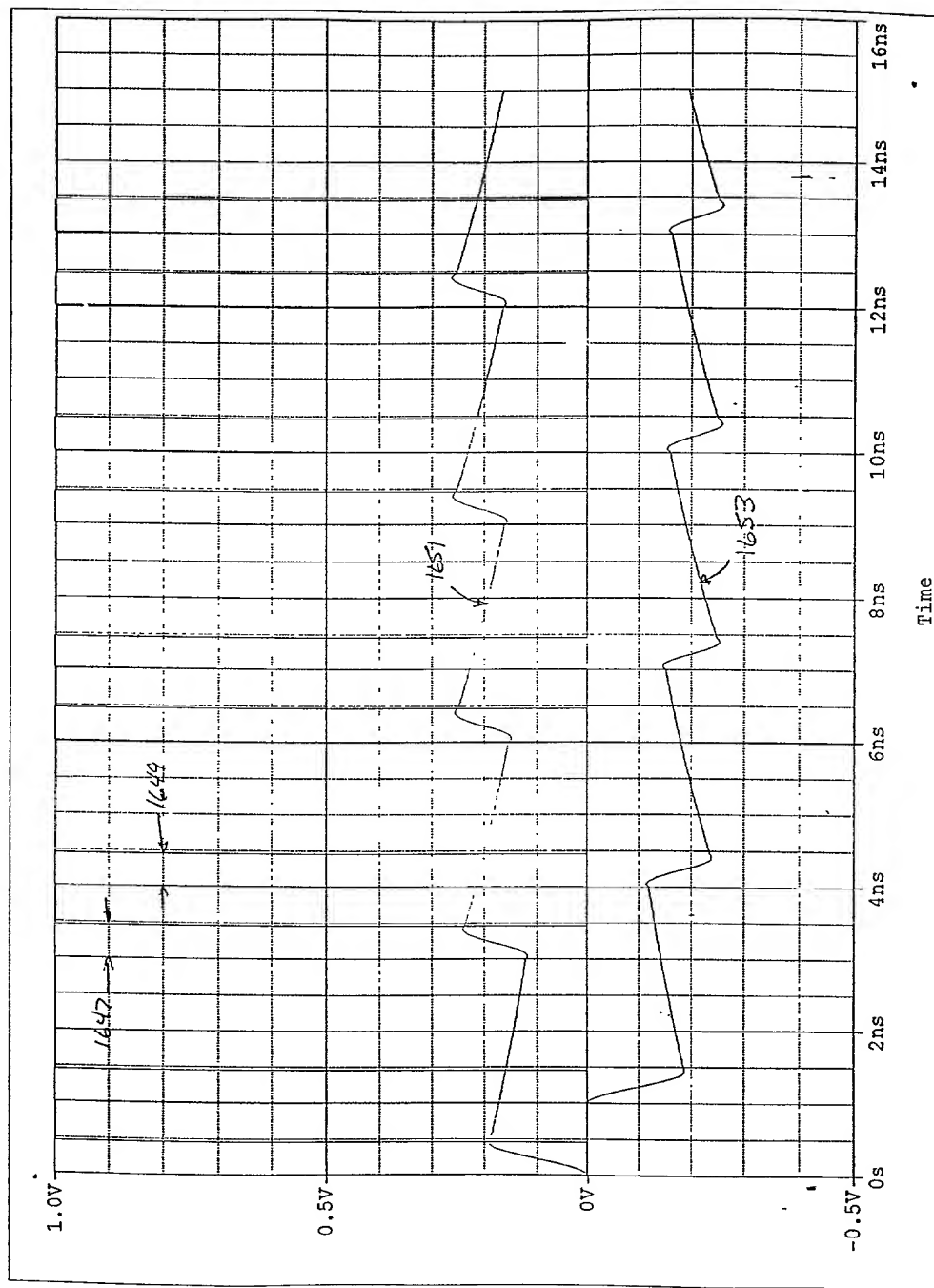


FIG. 16L

0955854 054604

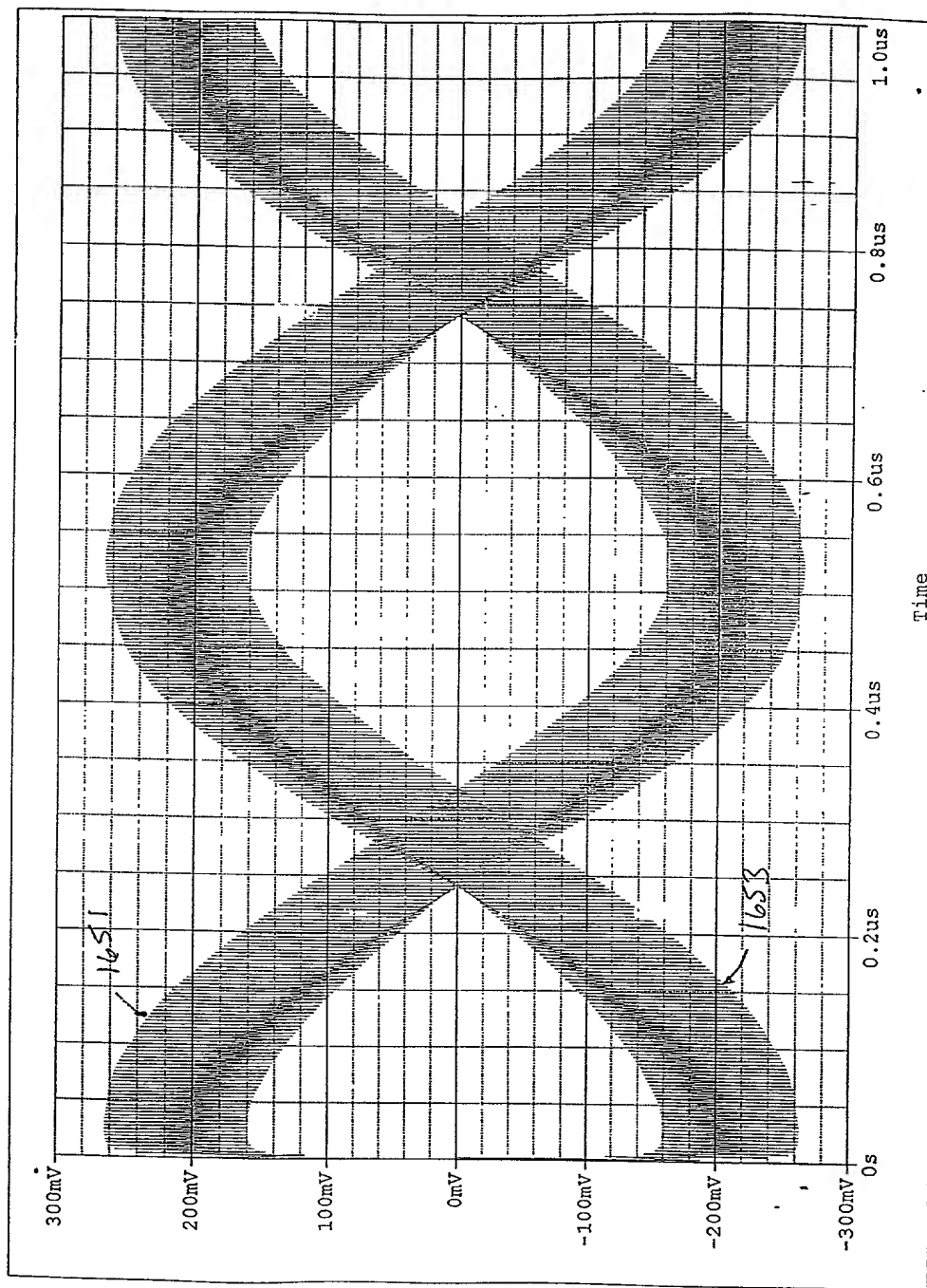


FIG. 16m

09655834 051604

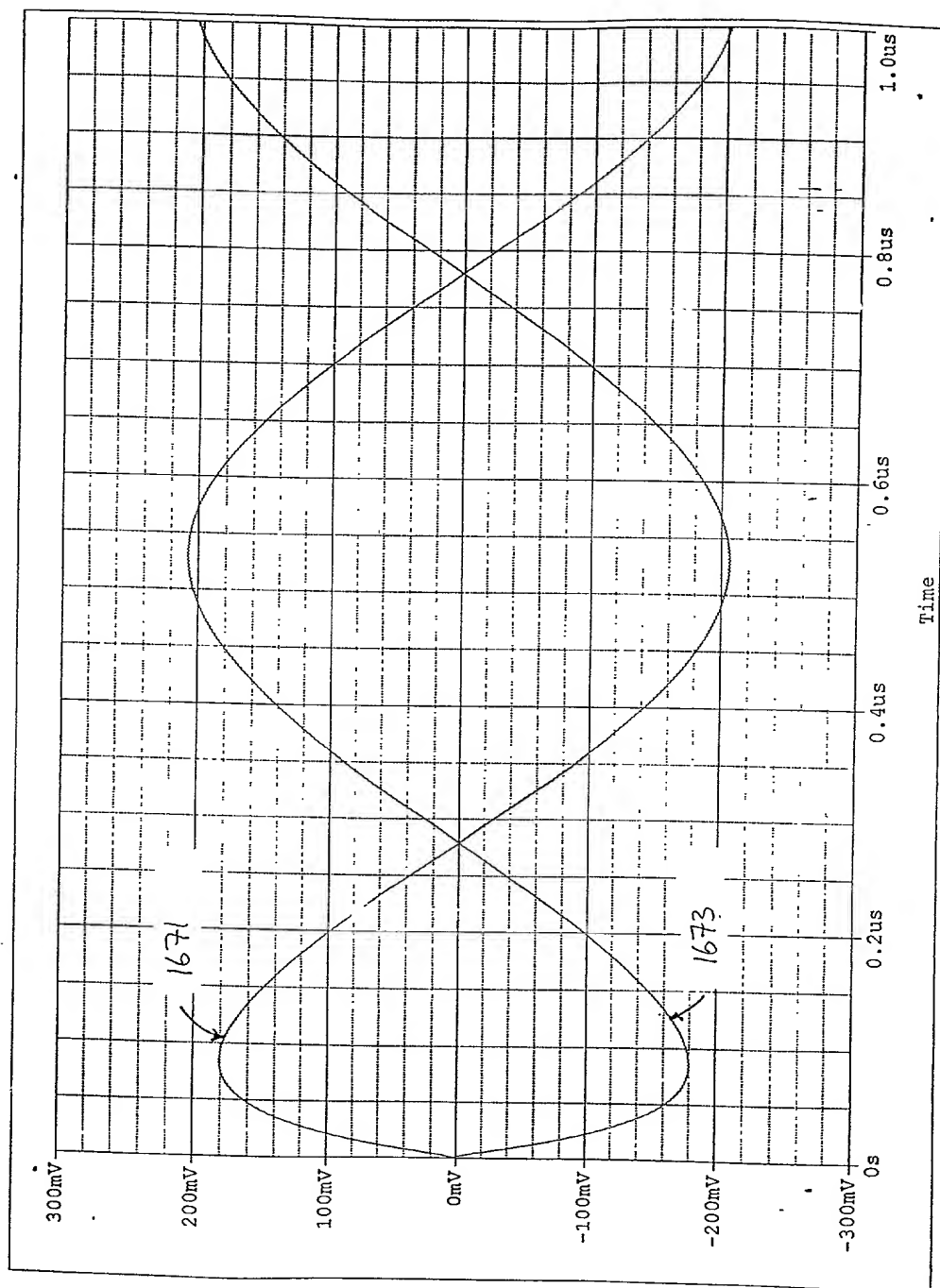


FIG. 16N

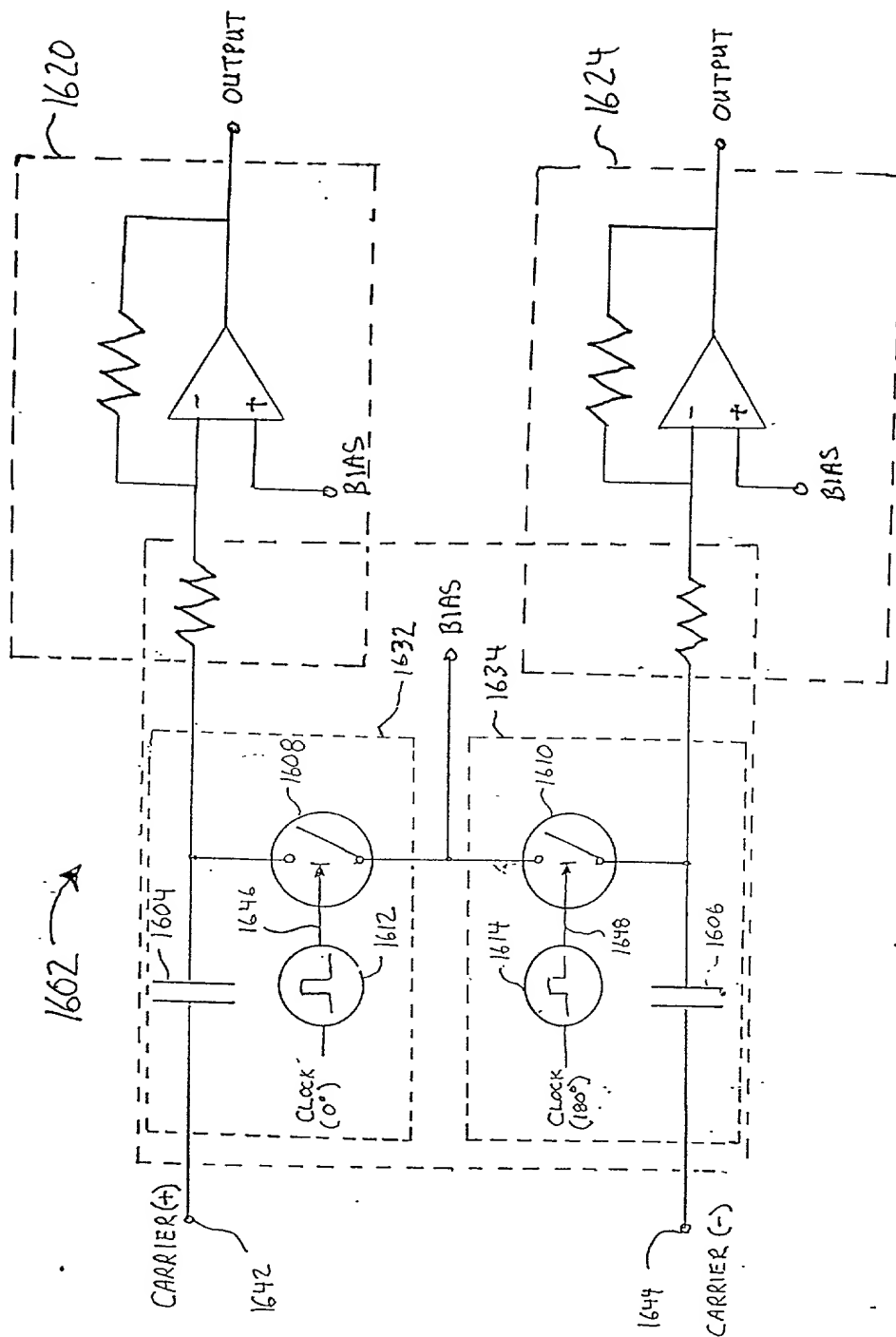
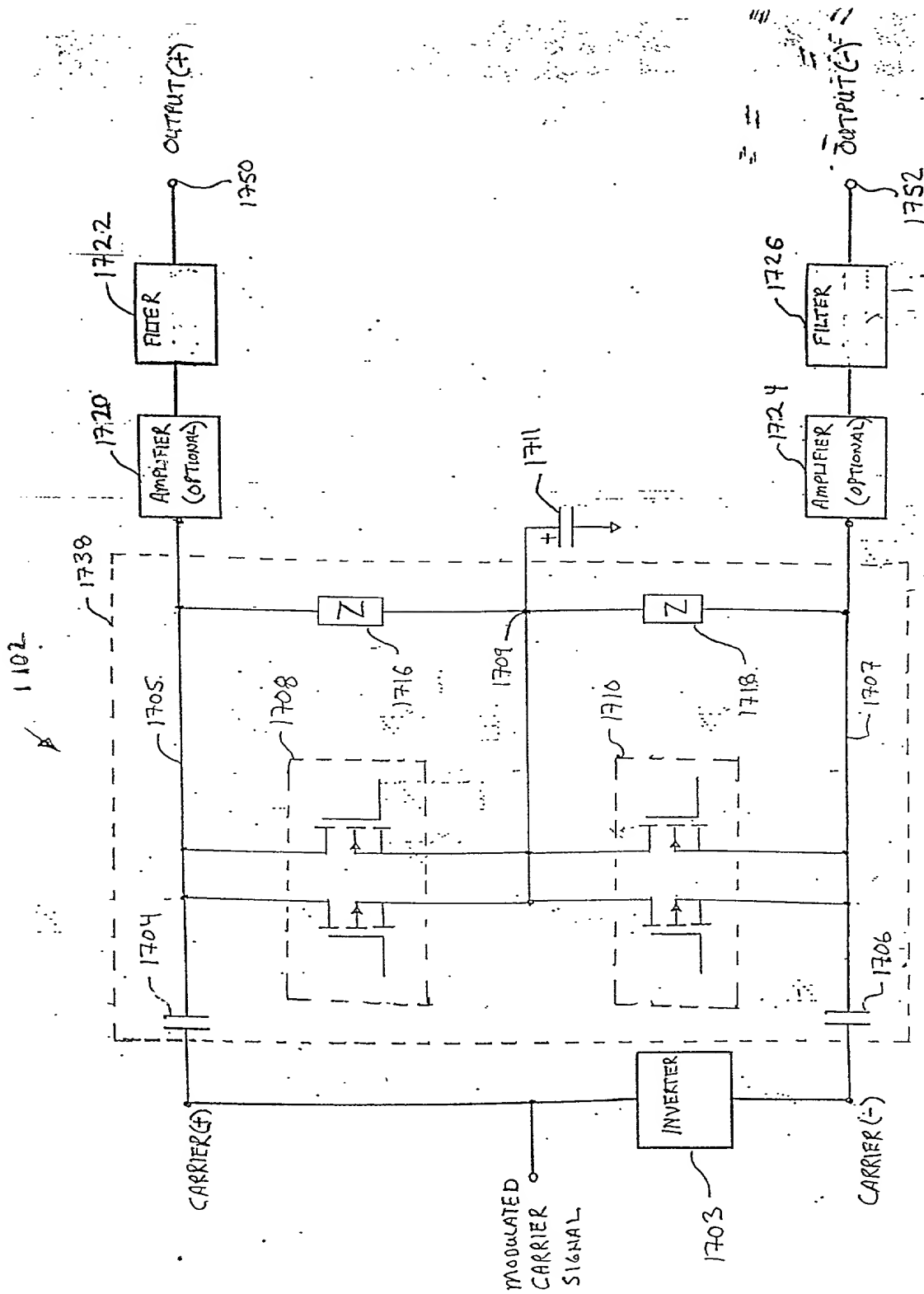


FIG. 160


$$\begin{array}{r} 17 \\ 16 \\ 11 \end{array}$$

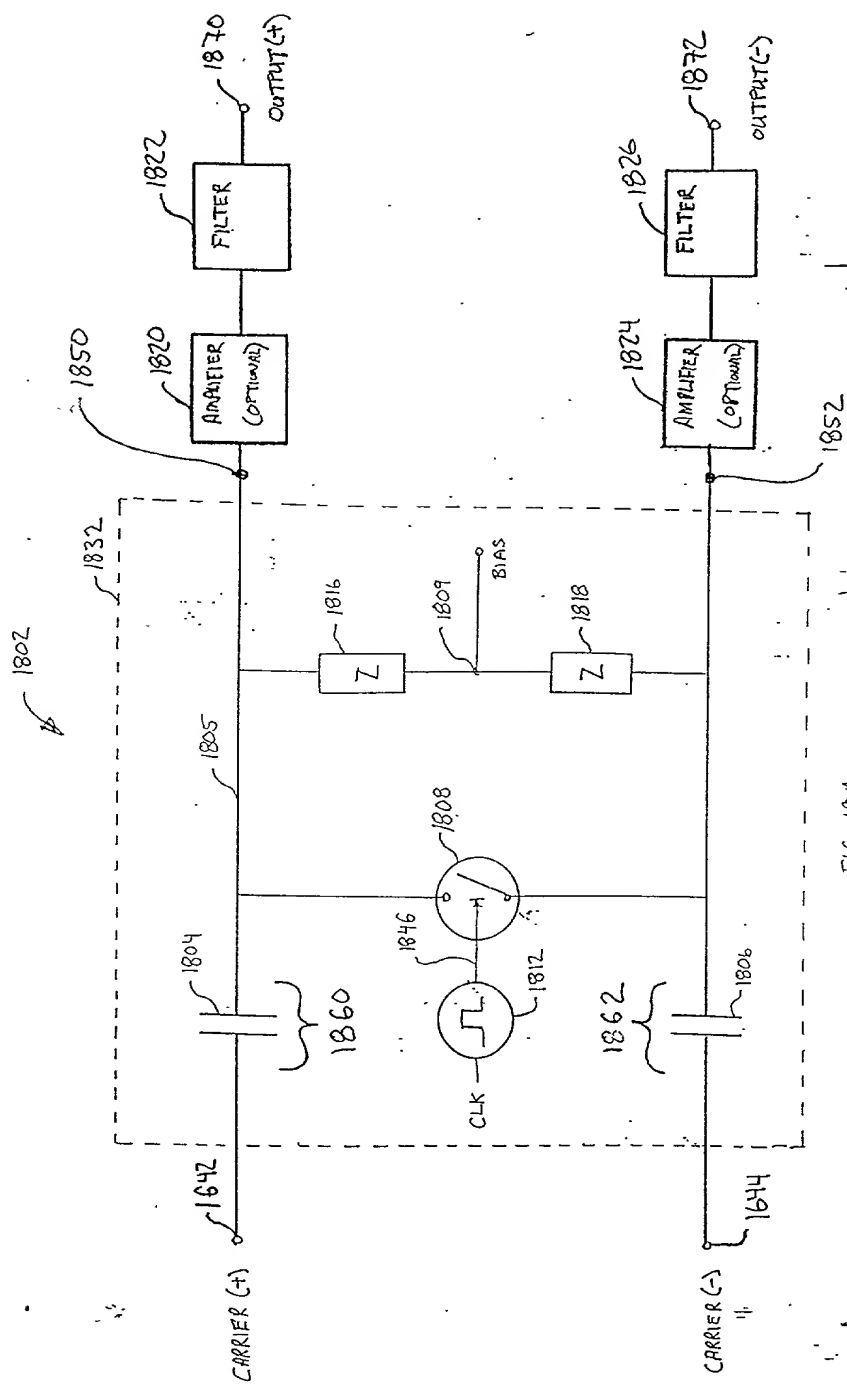


FIG. 18A

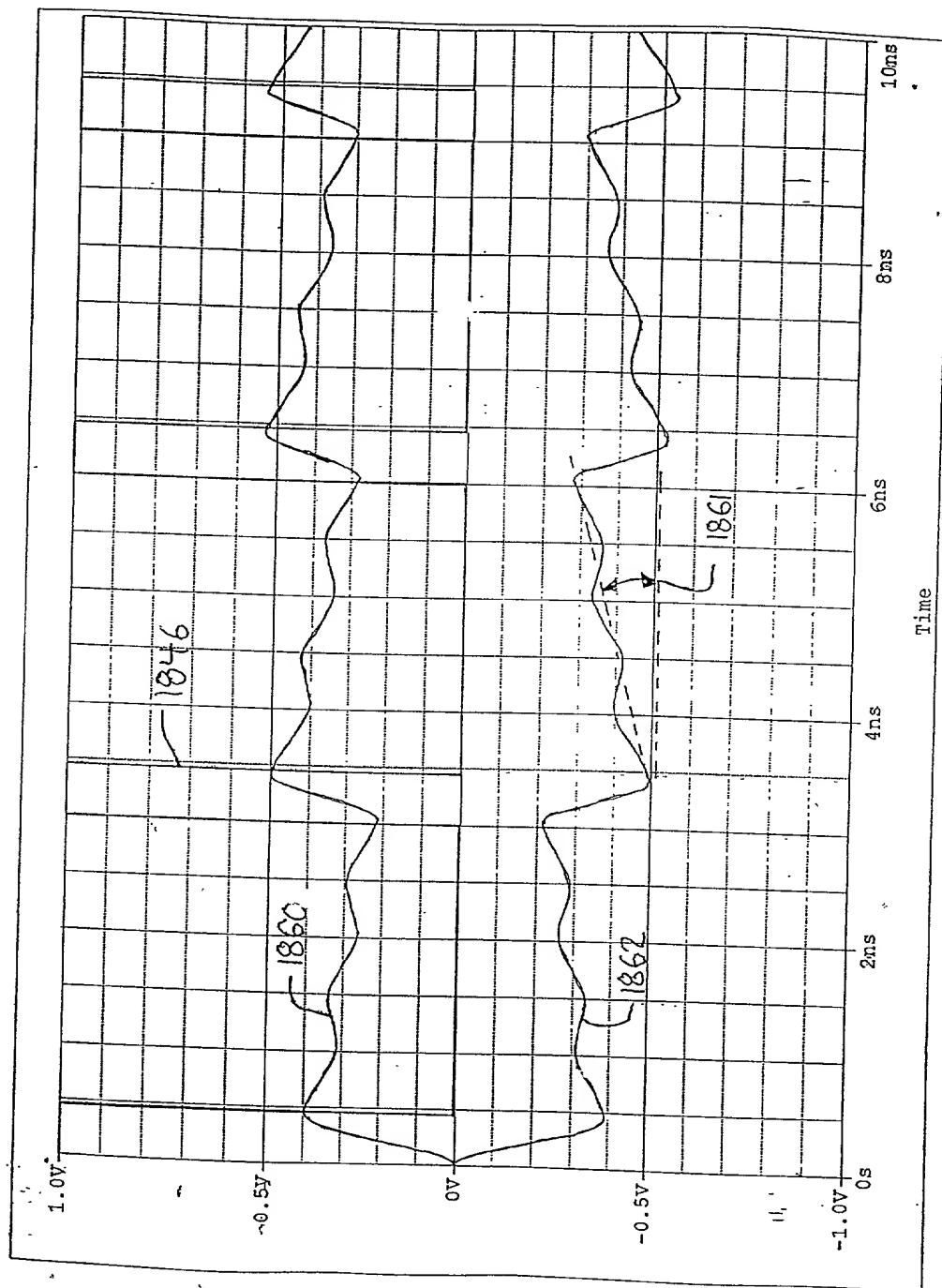


FIG. 18B

09855831 051604

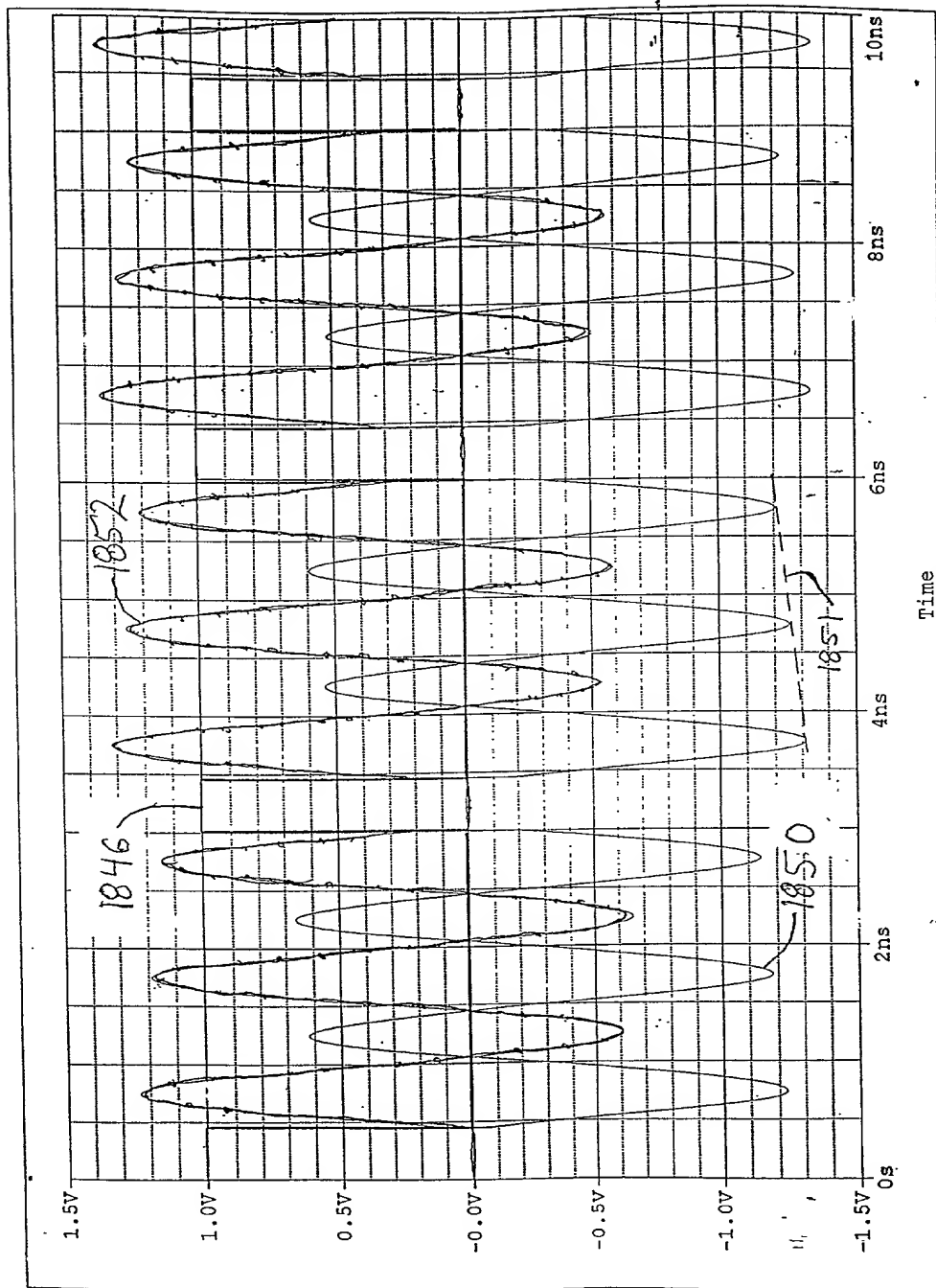


FIG. 18C

109150" 1989860

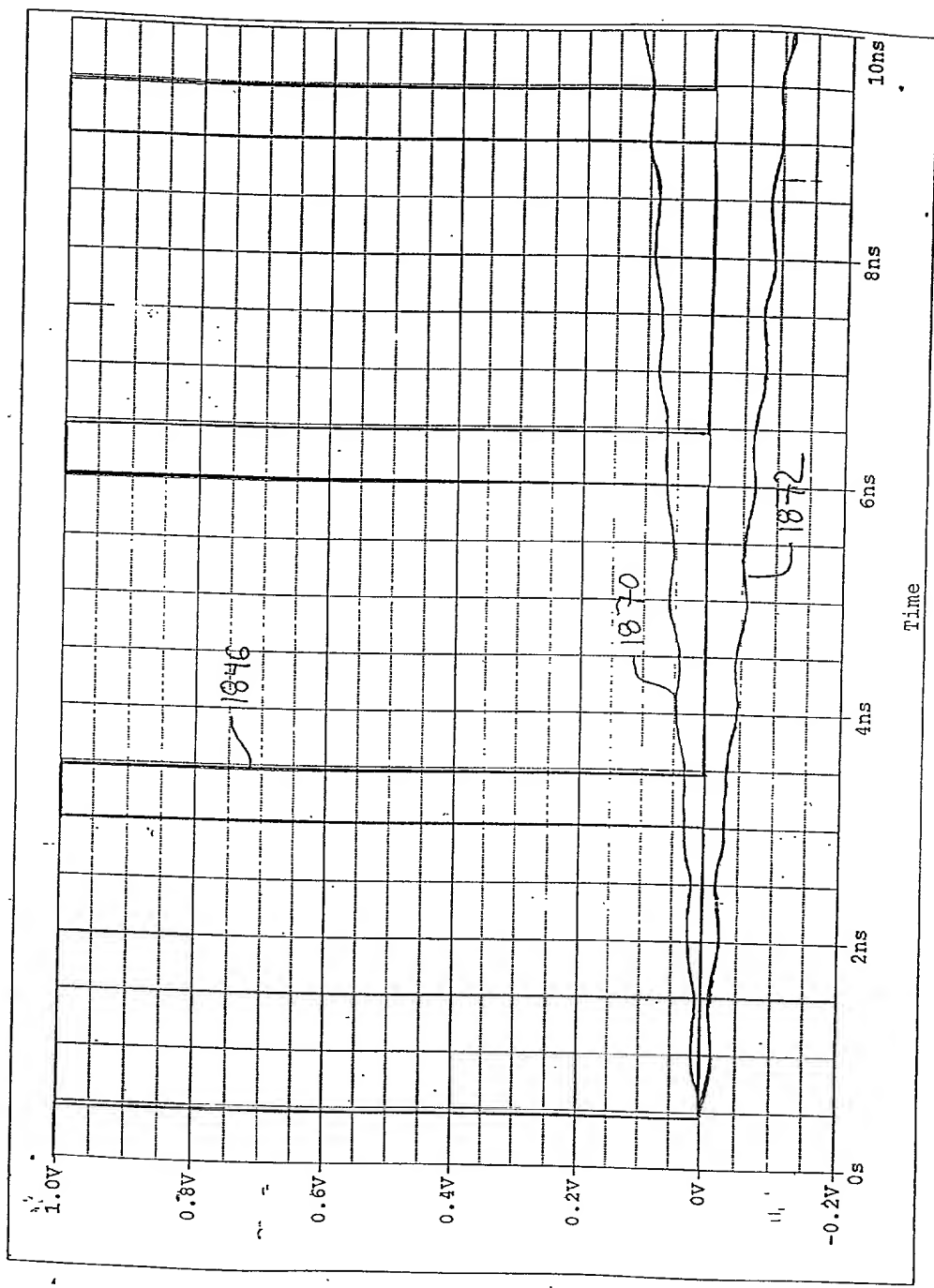


FIG. 18D

09855851 051601

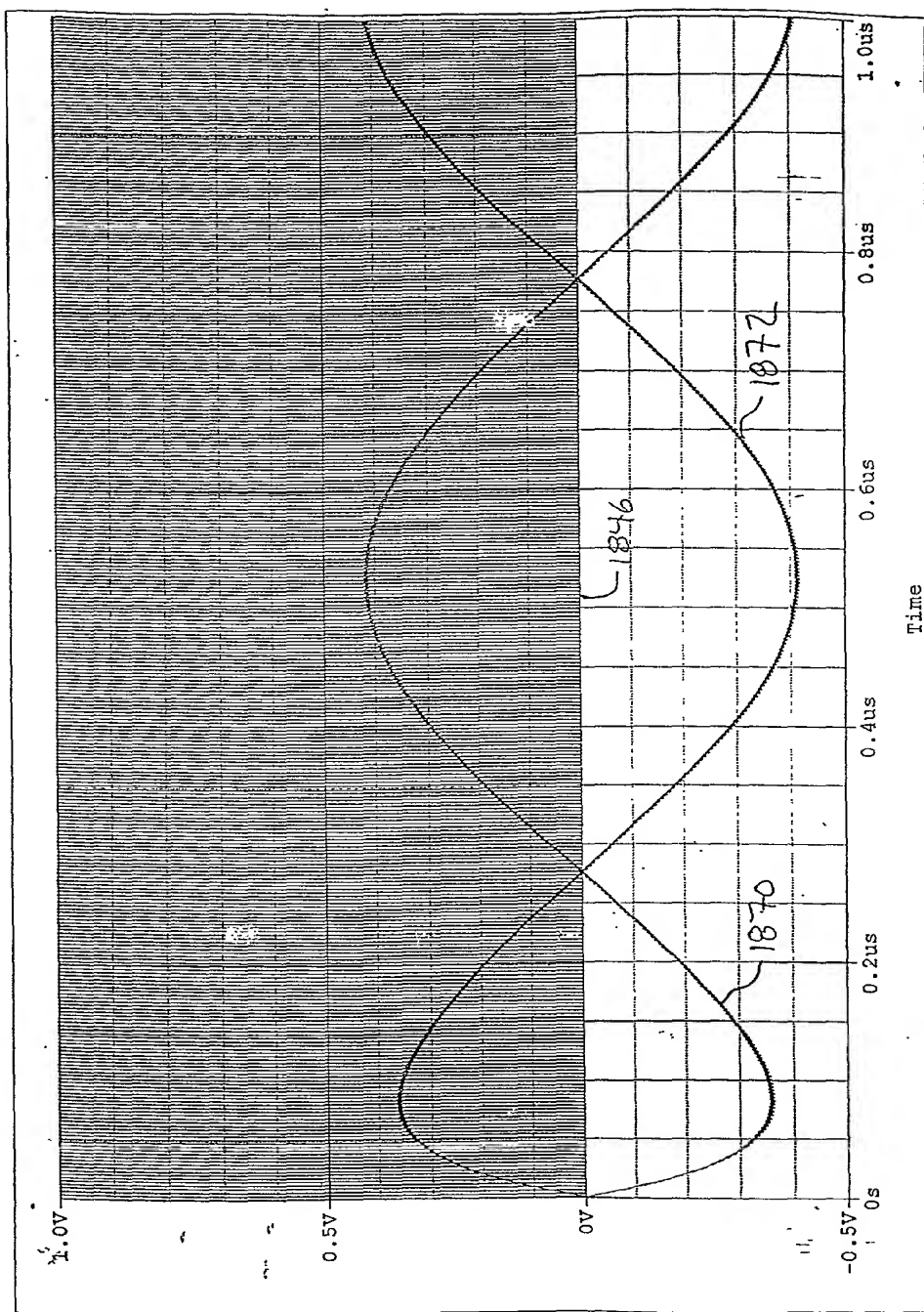


FIG. 18E

201

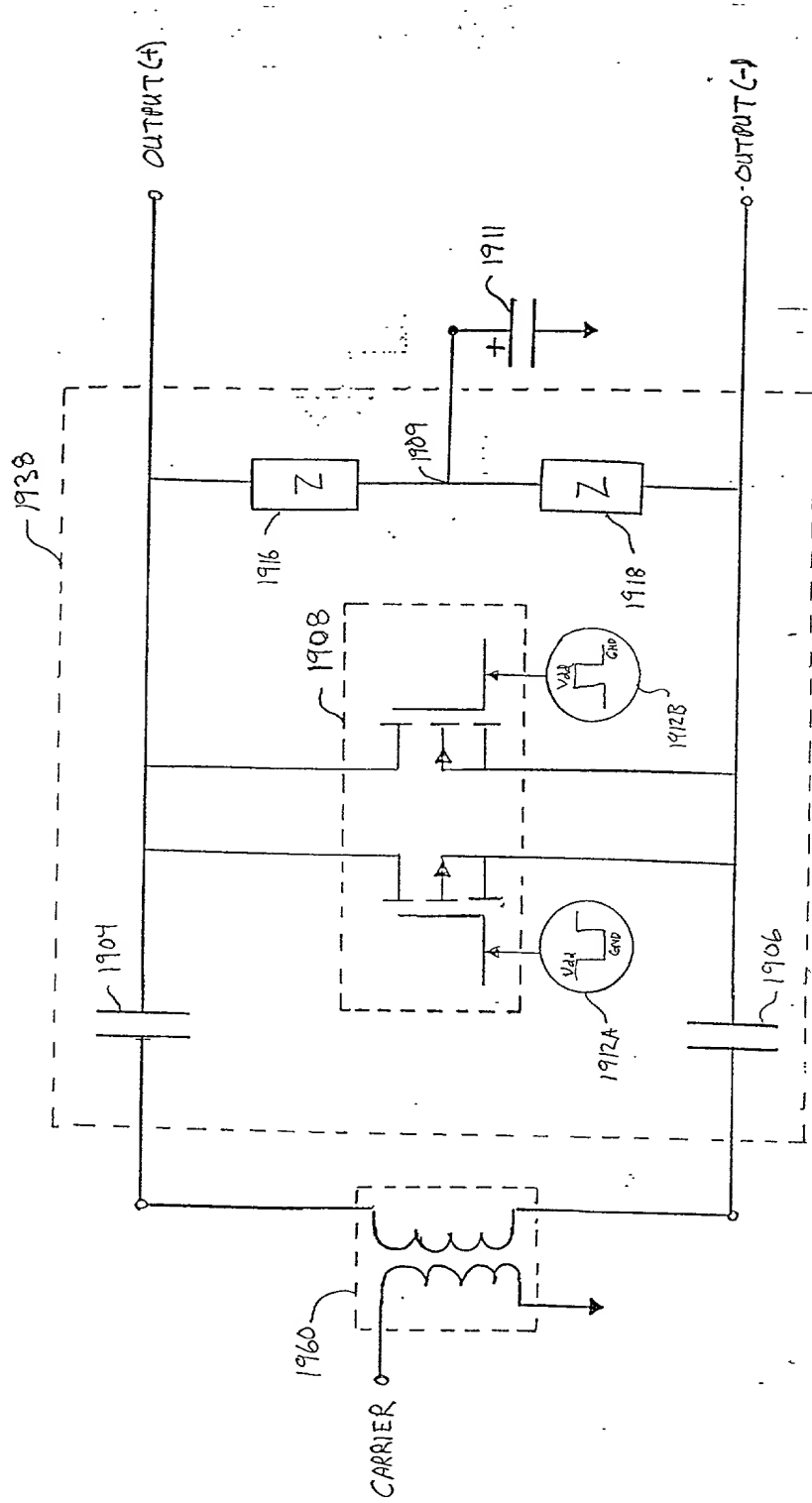


FIG. 19

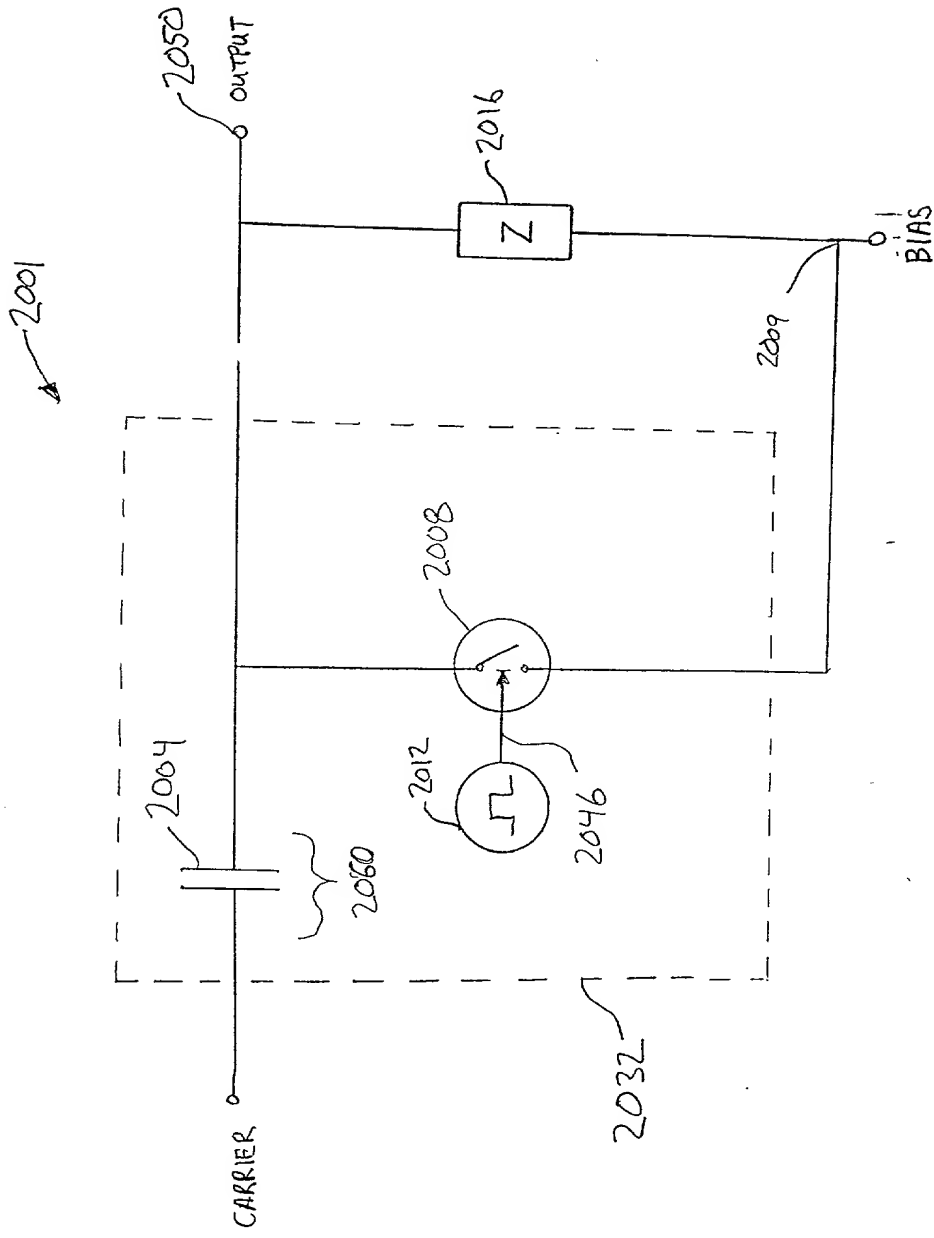


FIG. 20A.

093534 031604
T09750" T5855860

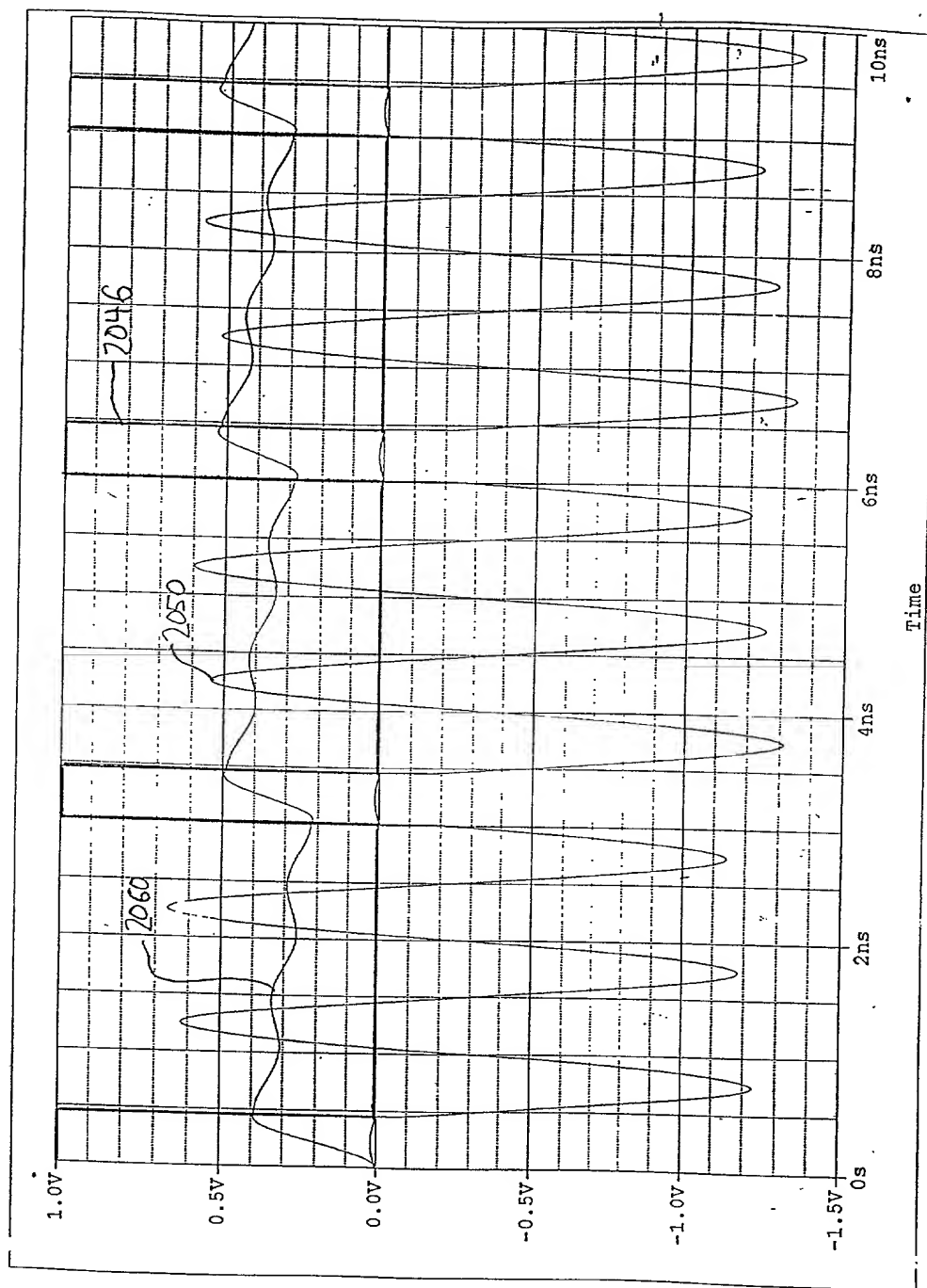


FIG. 20B

109750" 1995960

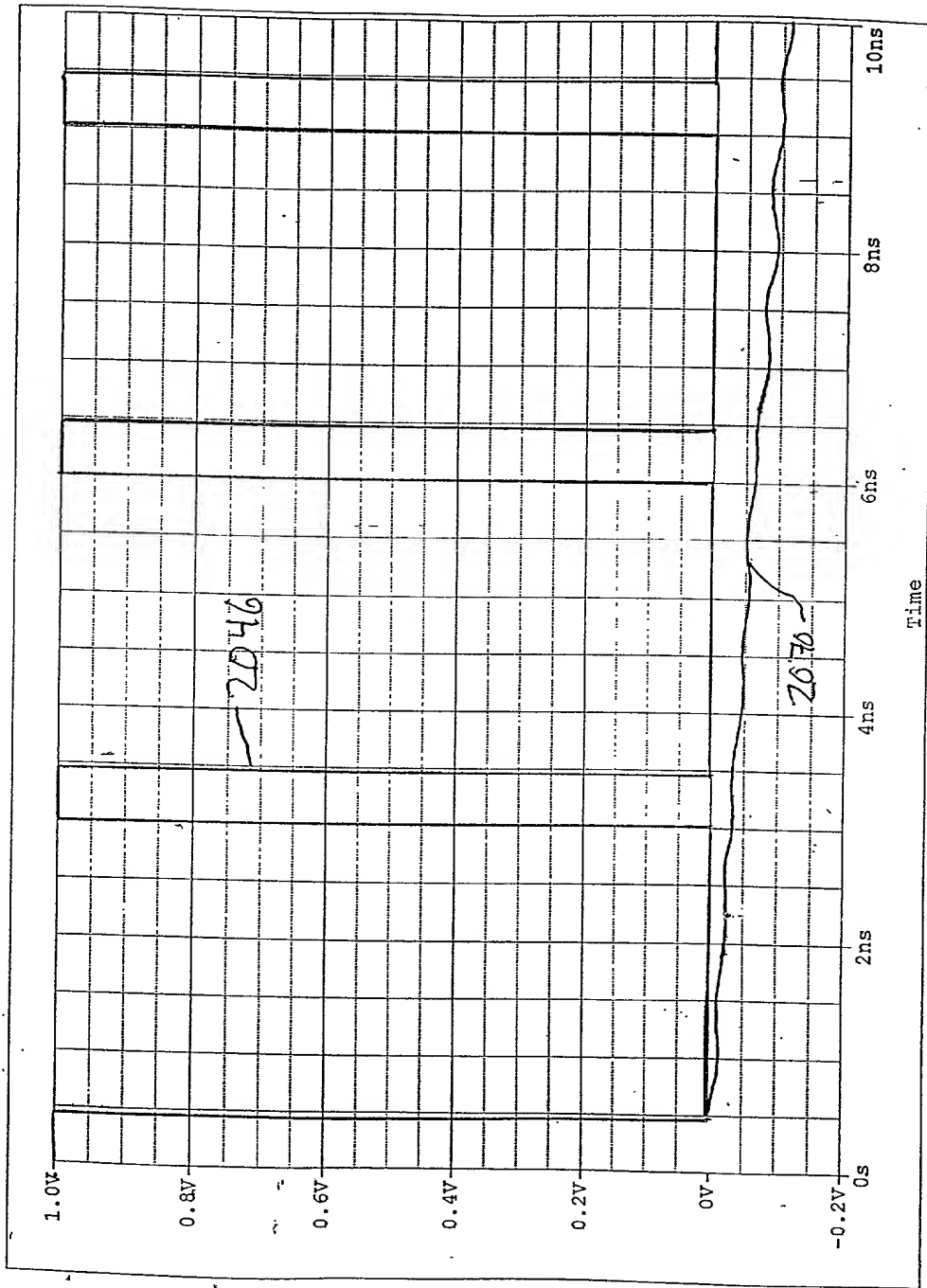


FIG. 20C

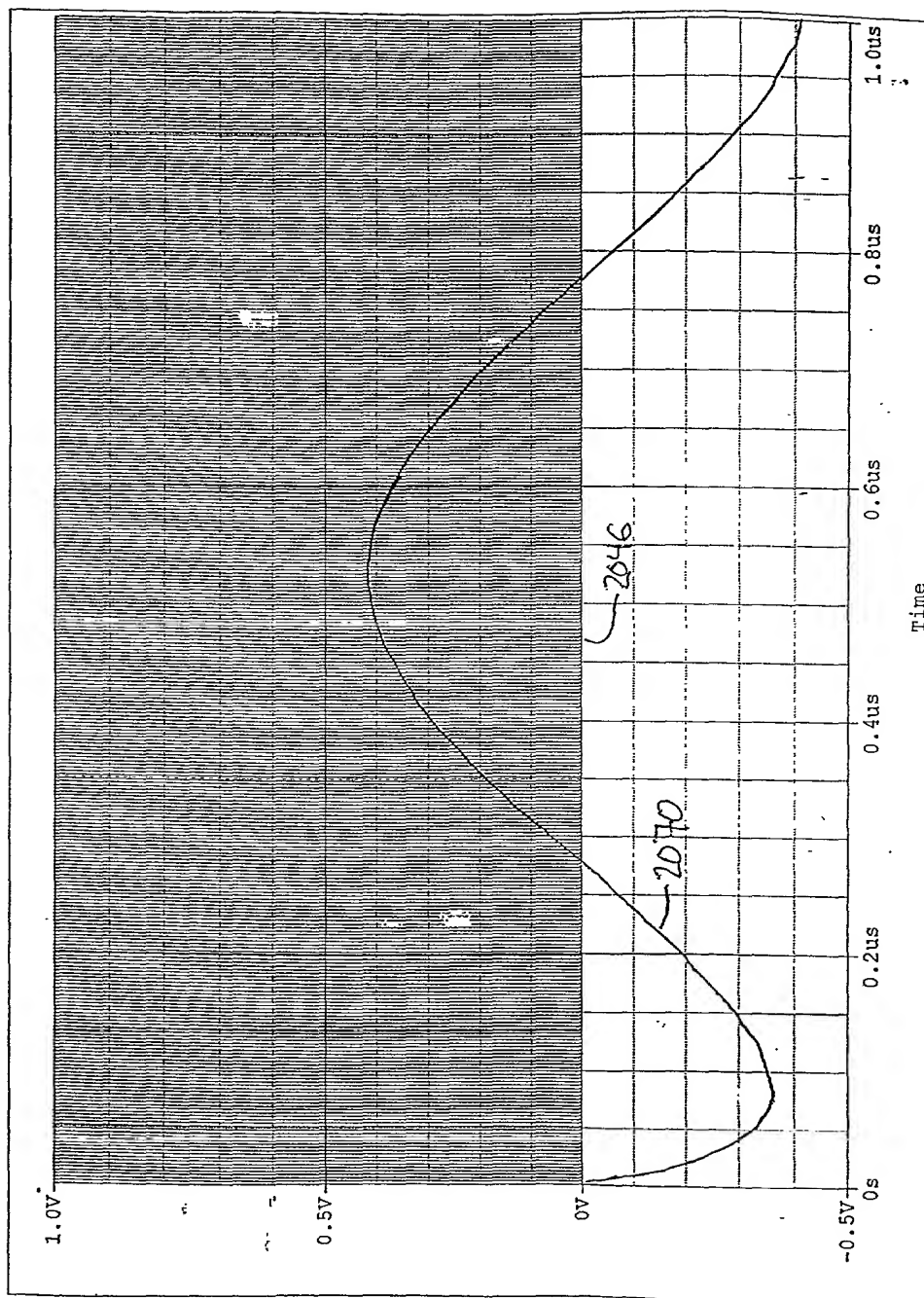
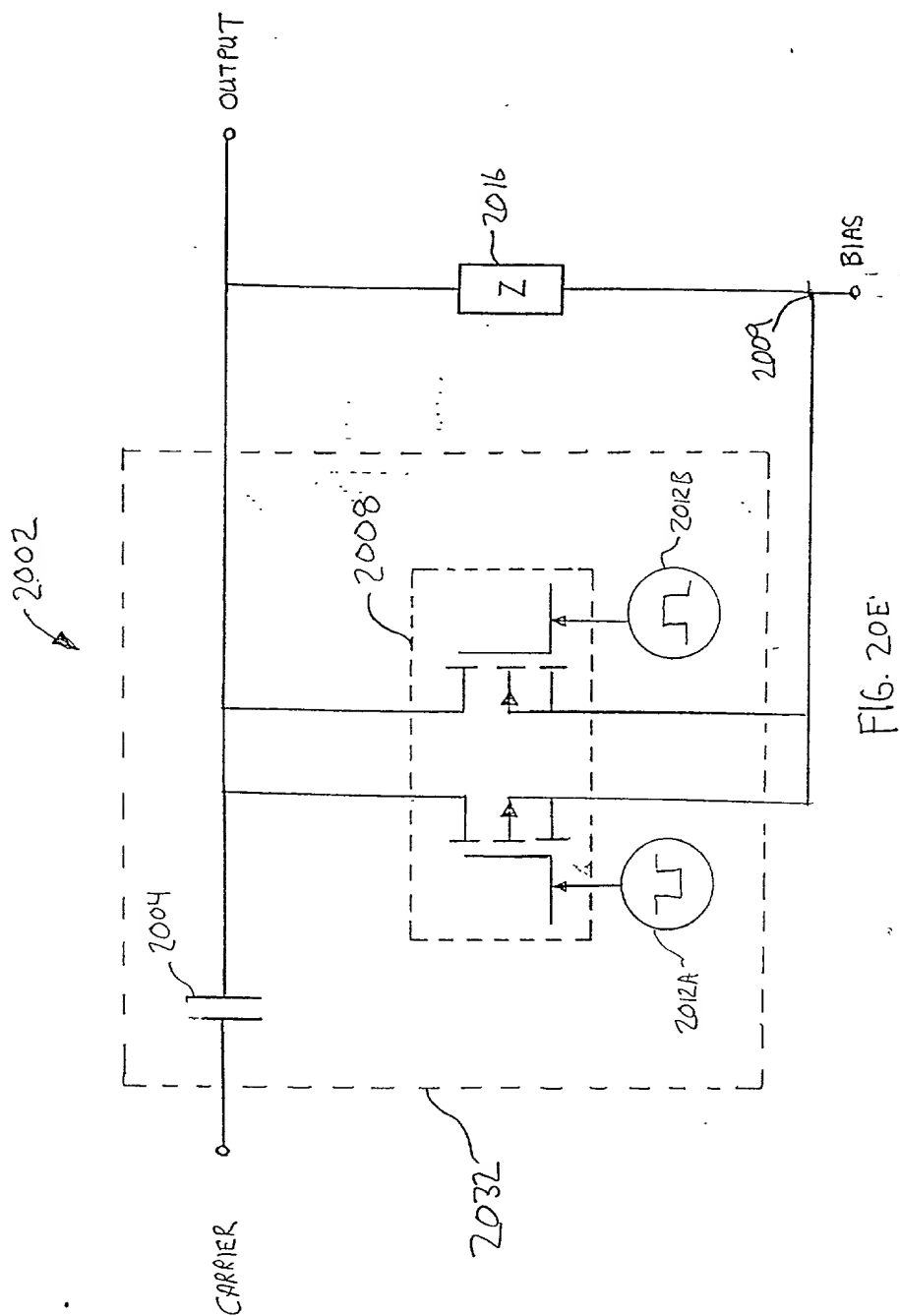


FIG. 20D



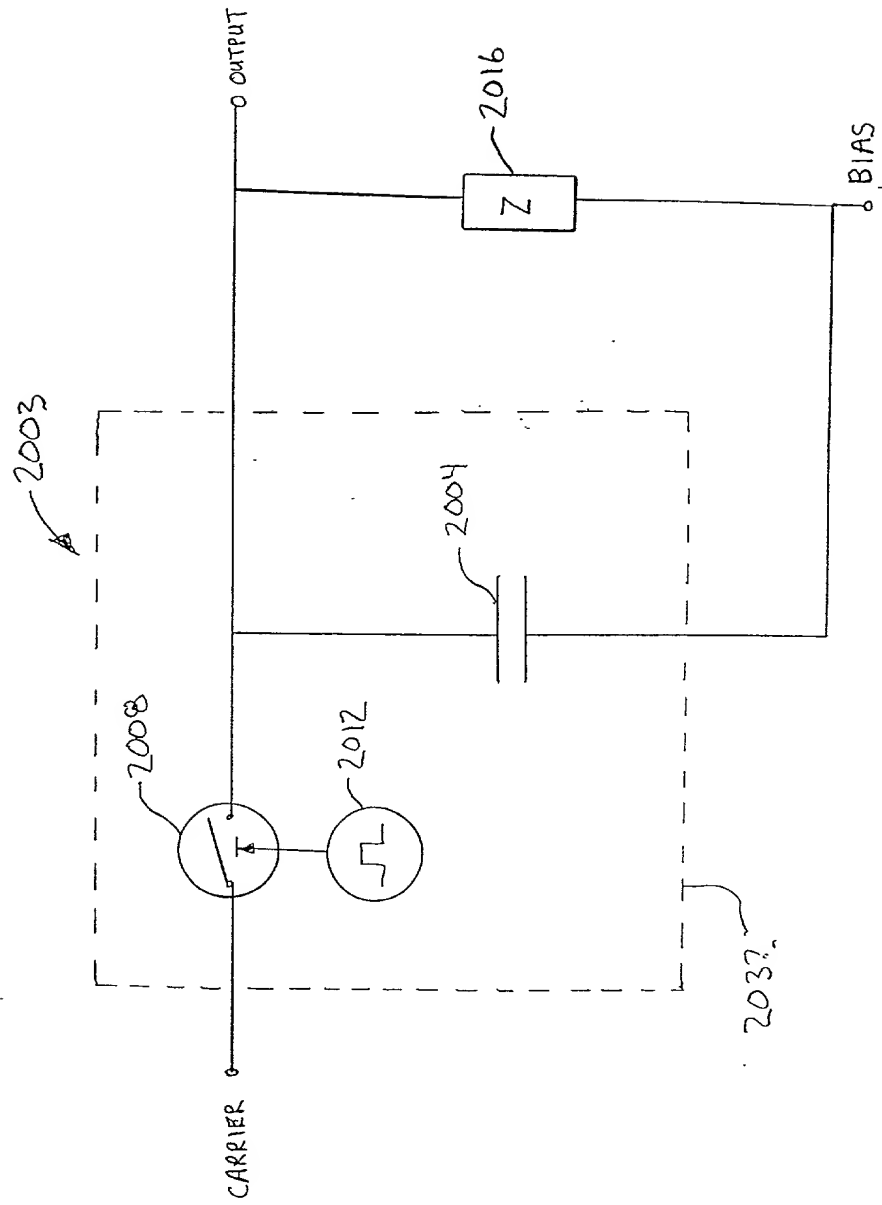


FIG. 20F

2101

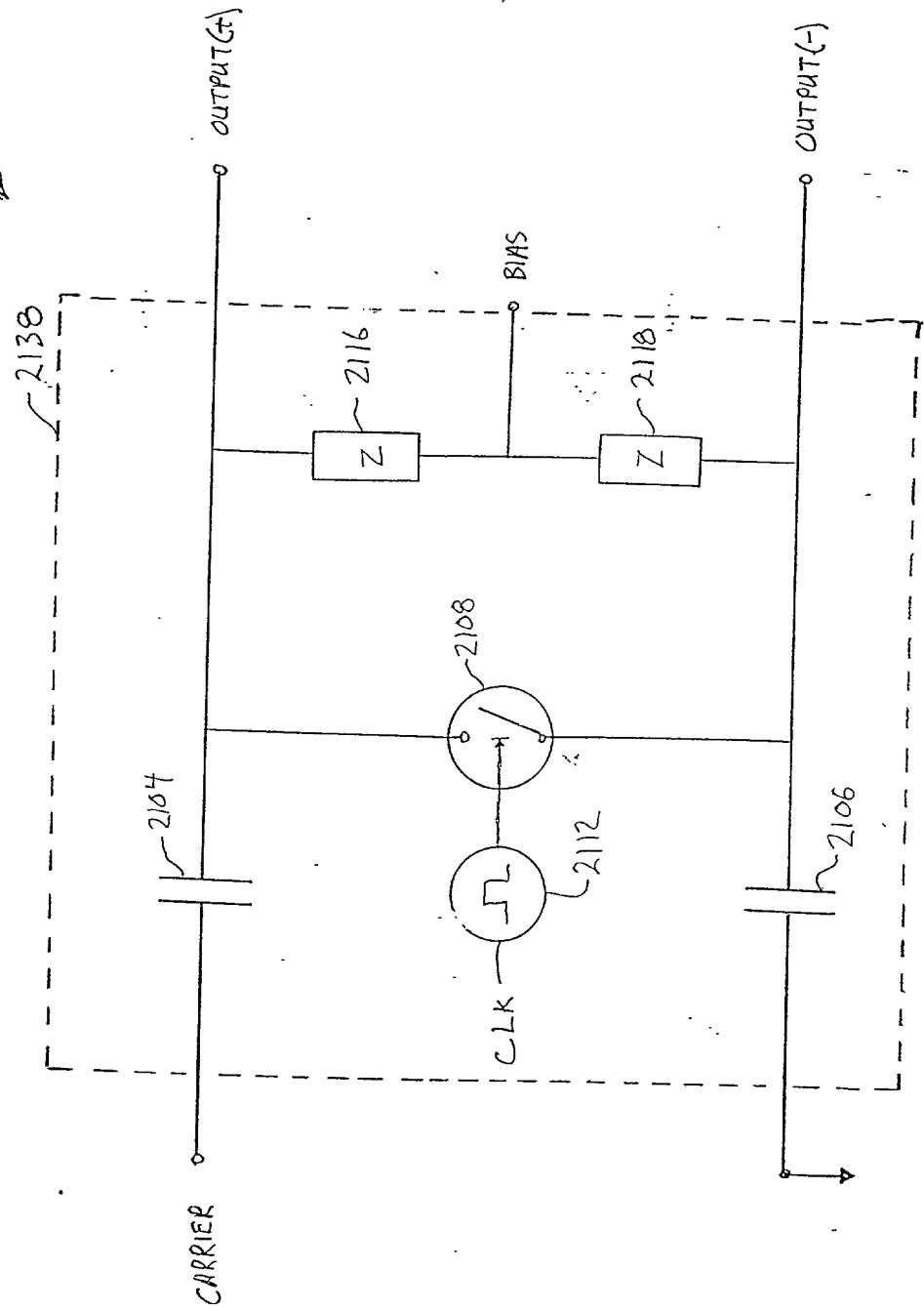


FIG. 21

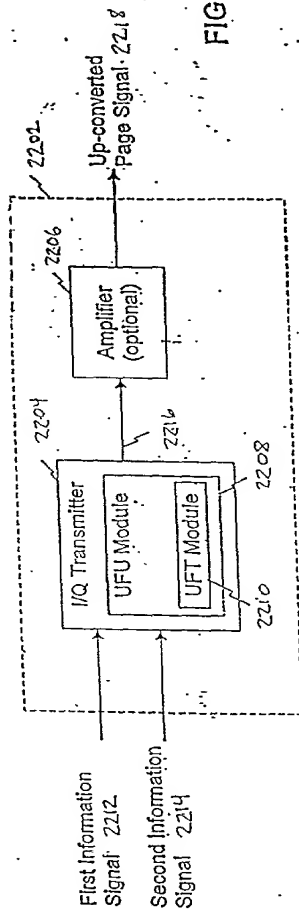


FIG. 22

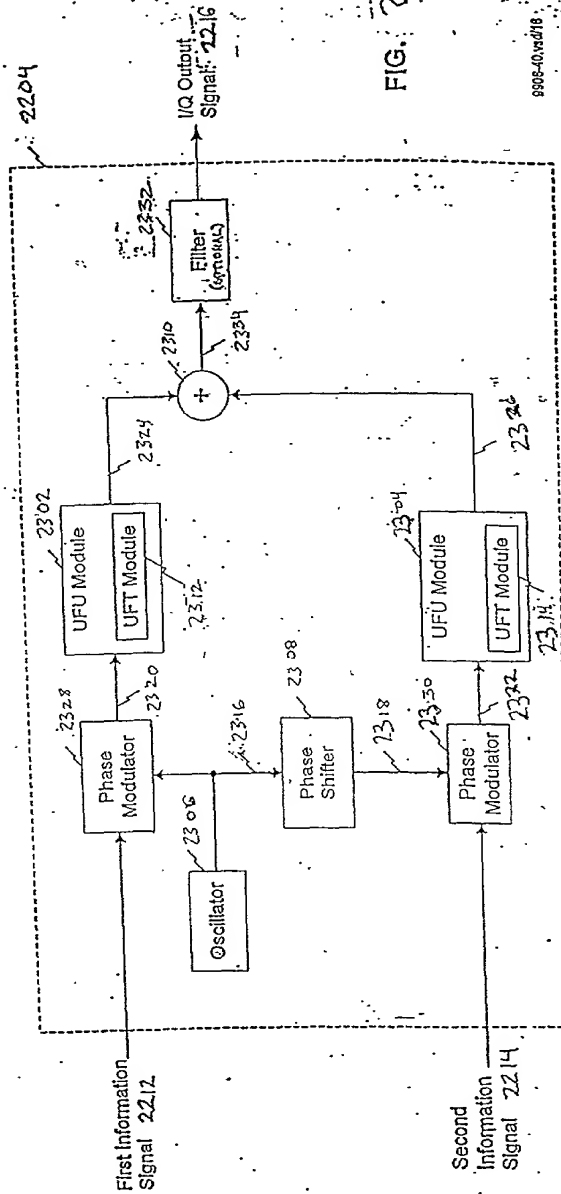
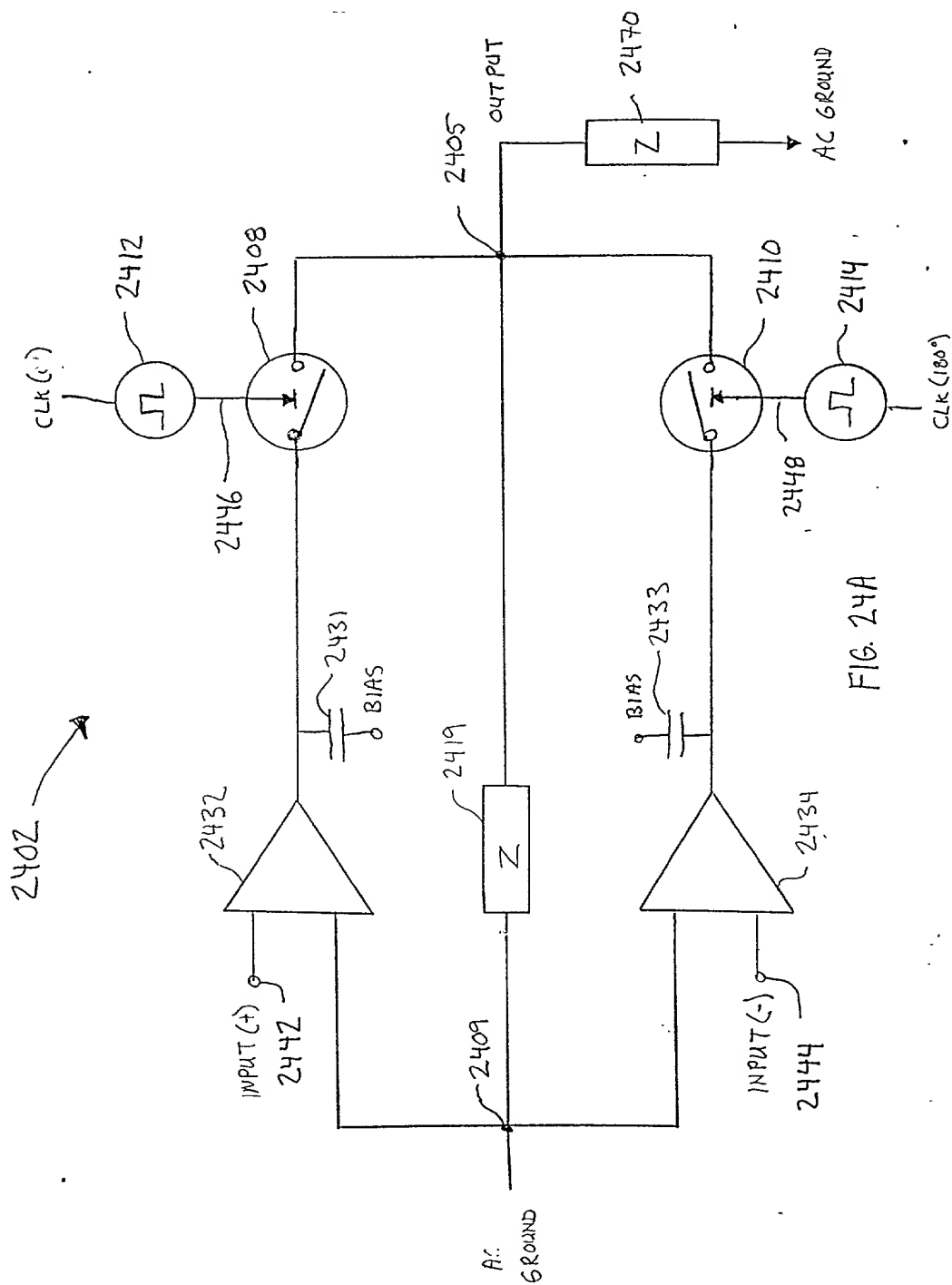
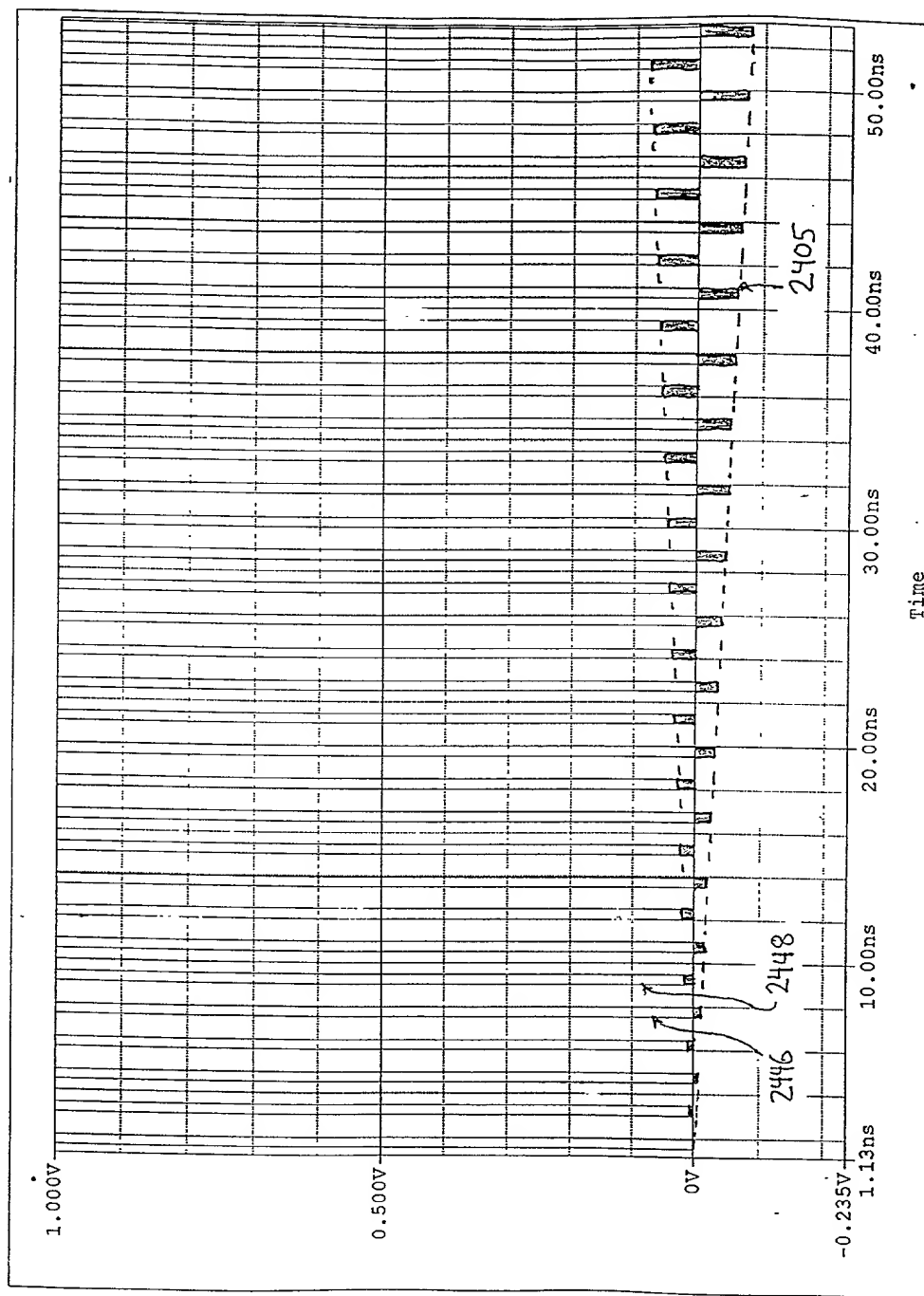


FIG. 23



POSTAGE



F16.24B

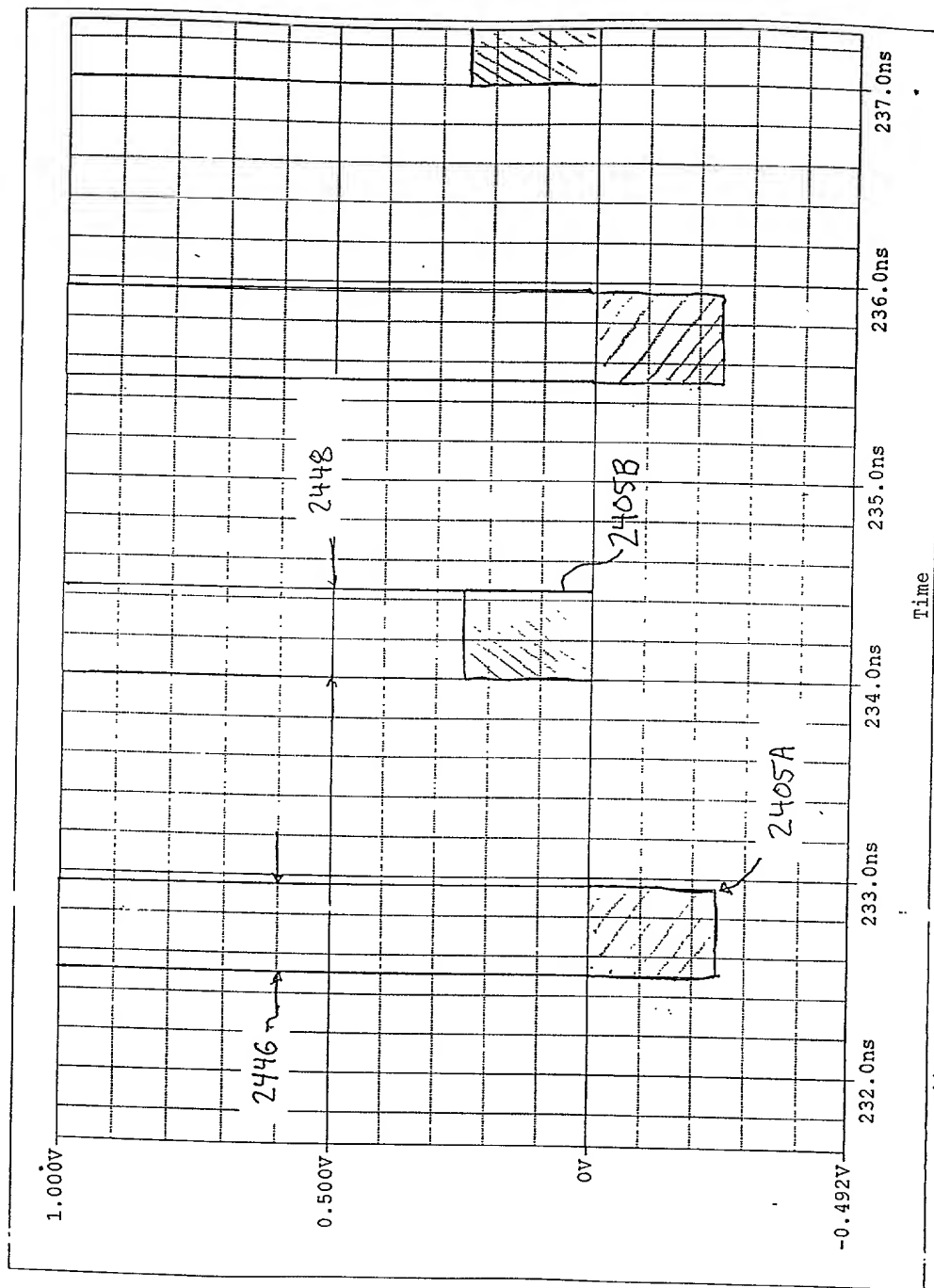


FIG. 24C

09855851 051604

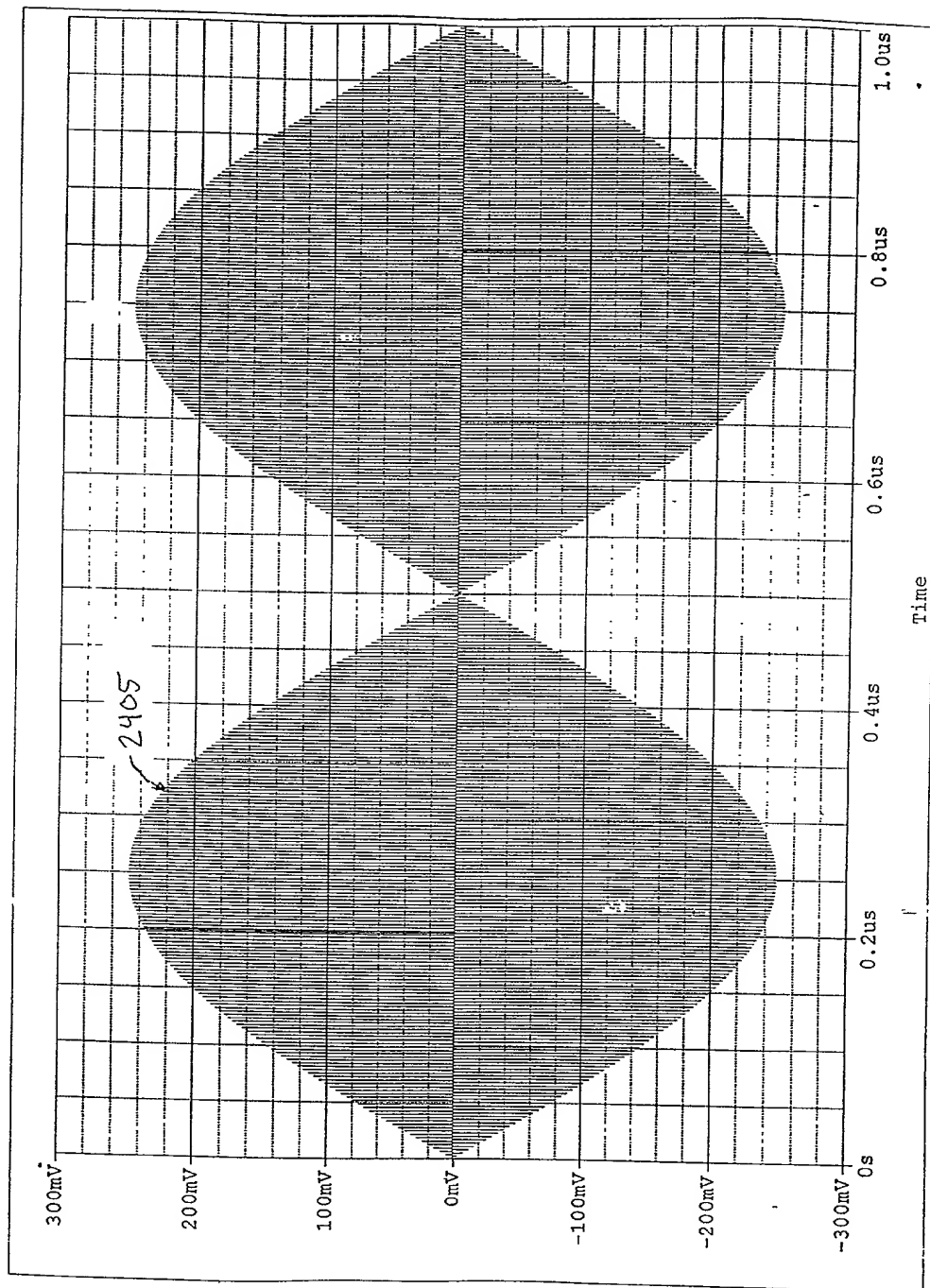


FIG. 24D

09855851 051604

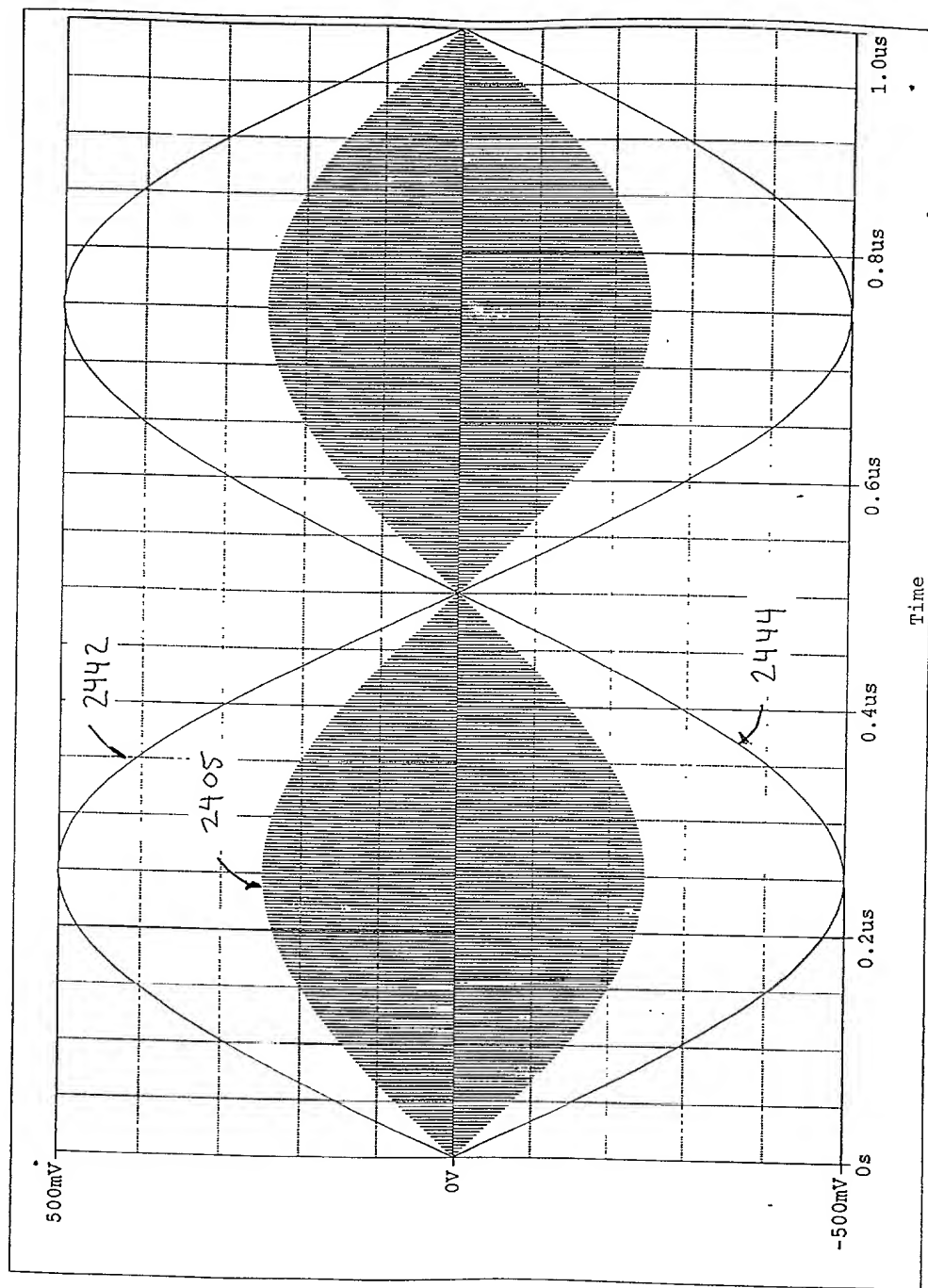


FIG. 24E

109150" 1555860

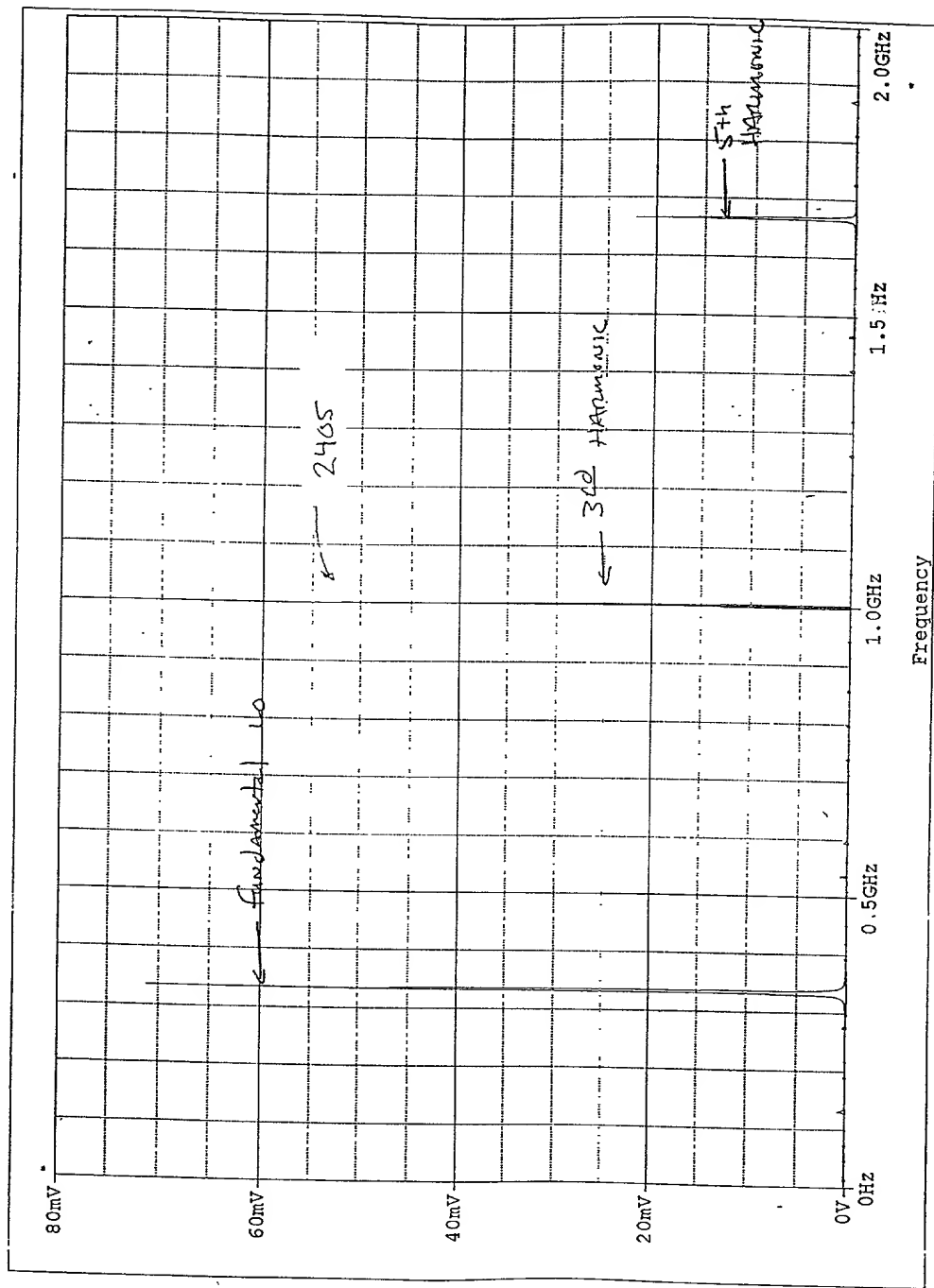
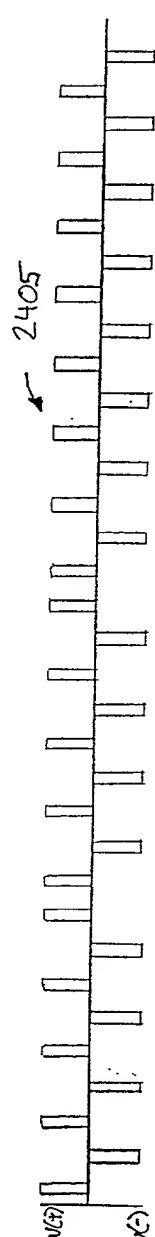
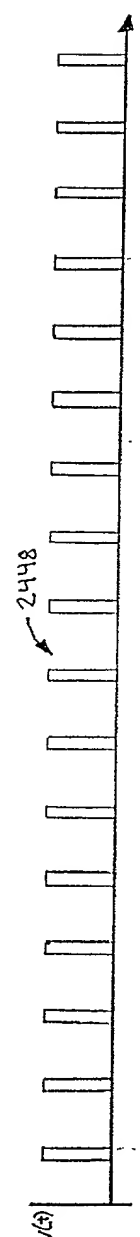
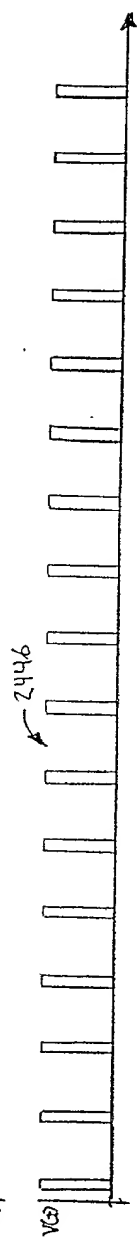
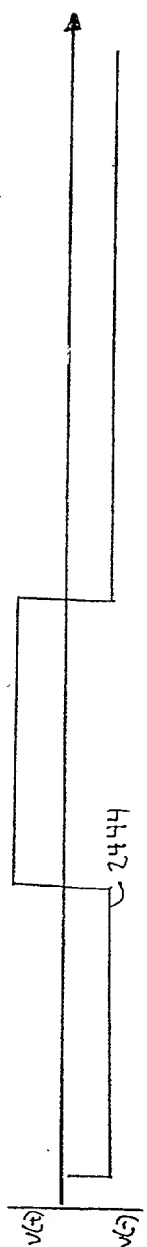
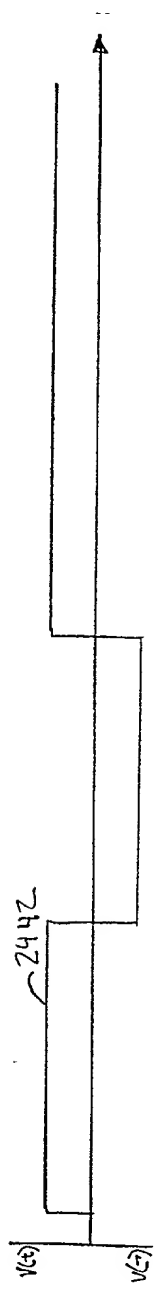


FIG. 24F



2502

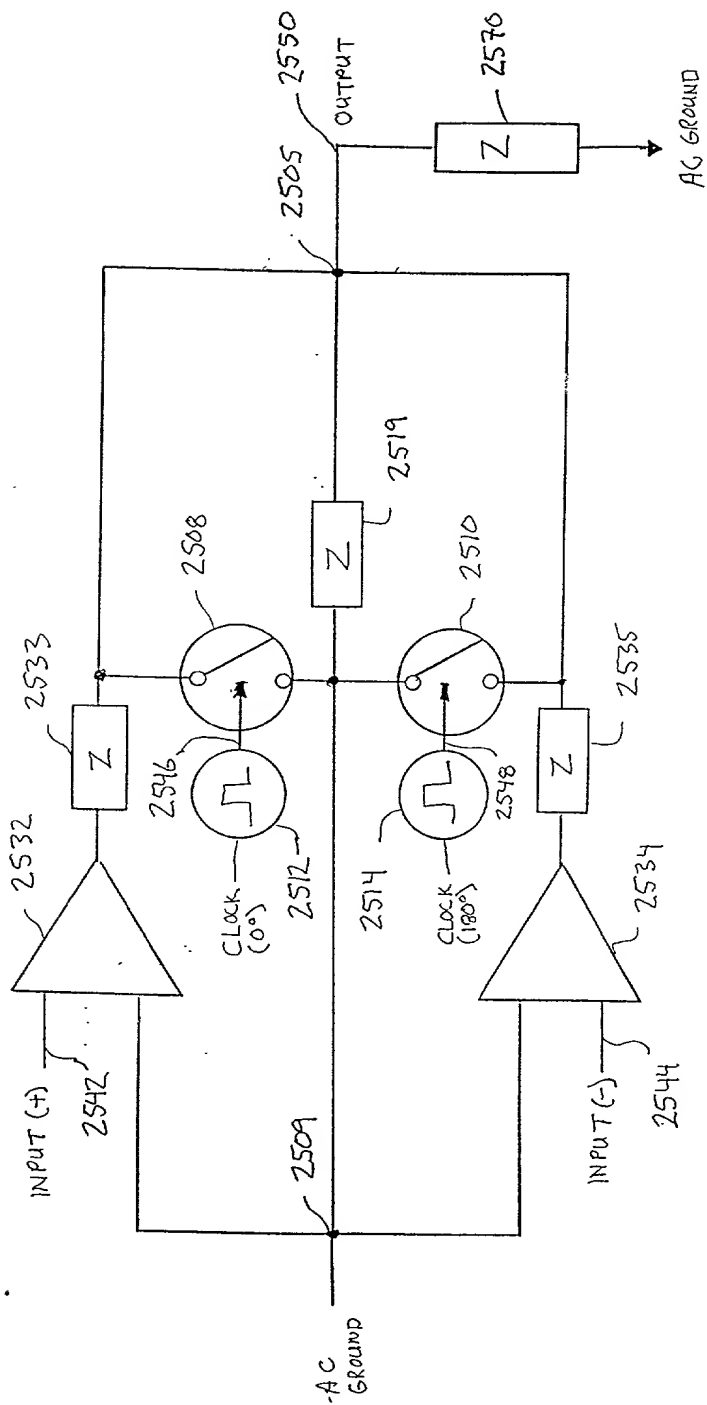
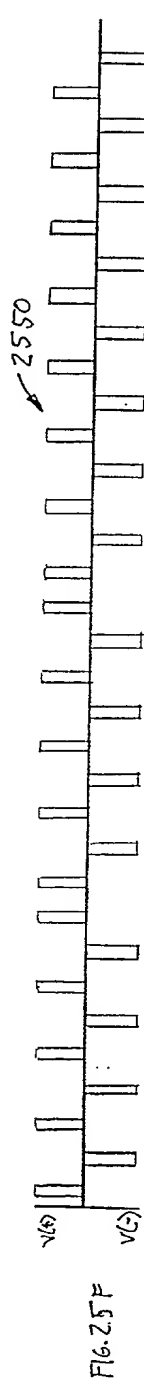
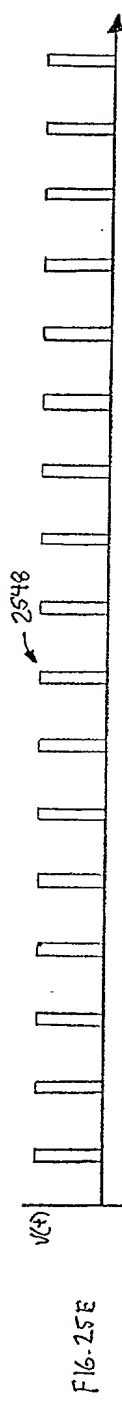
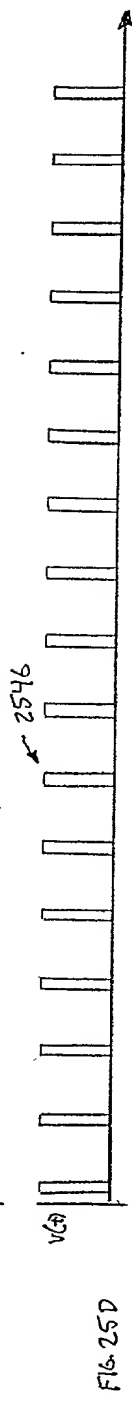
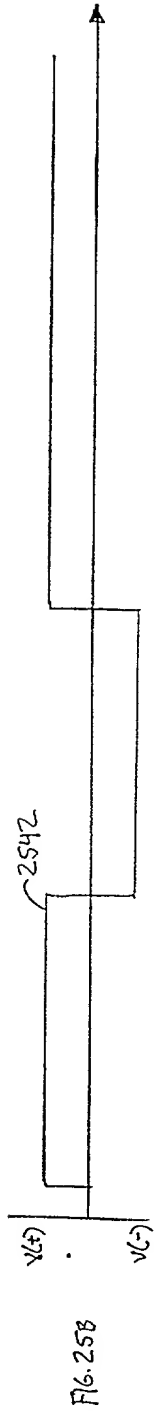


FIG. 25A



2602

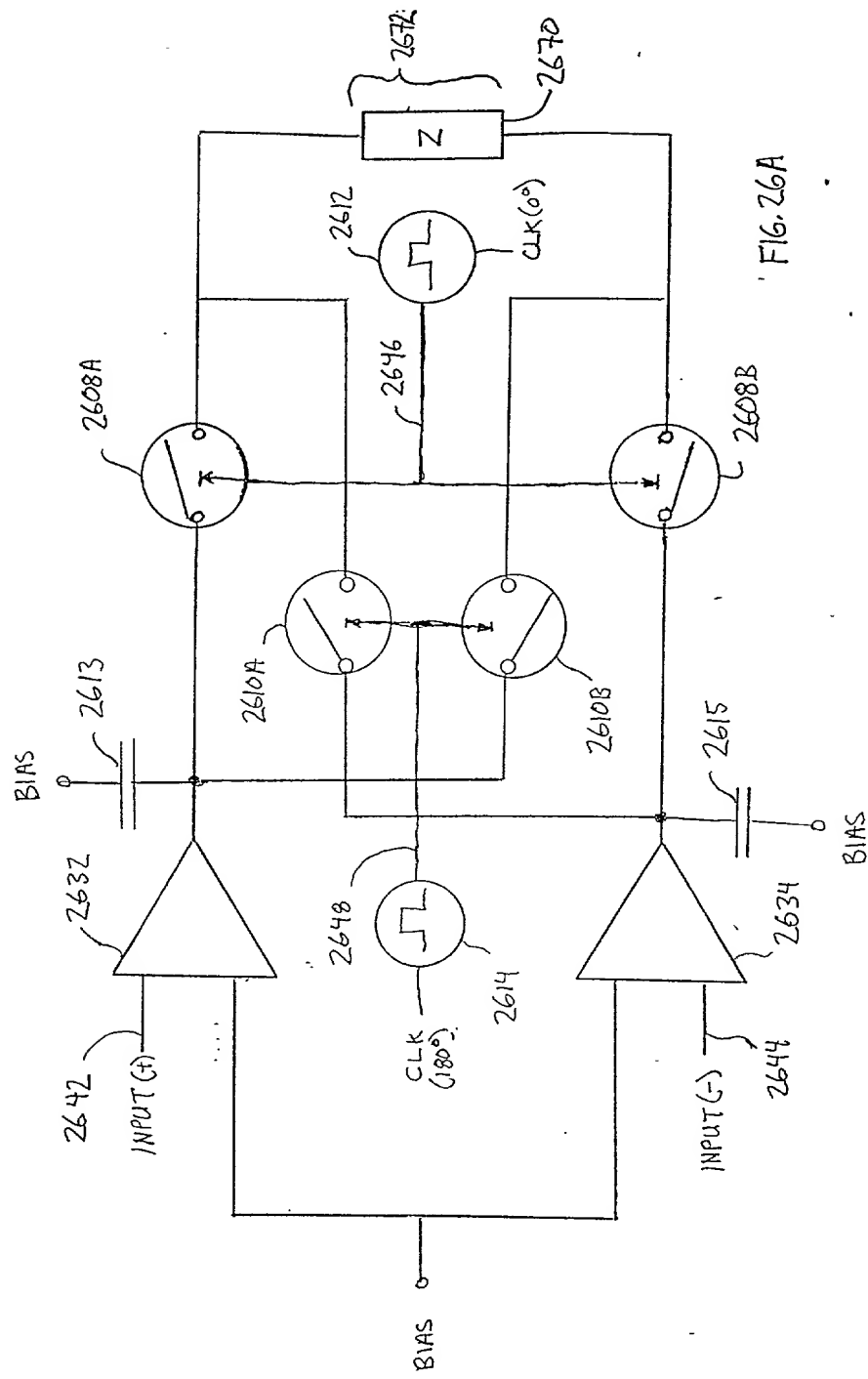


FIG. 26A

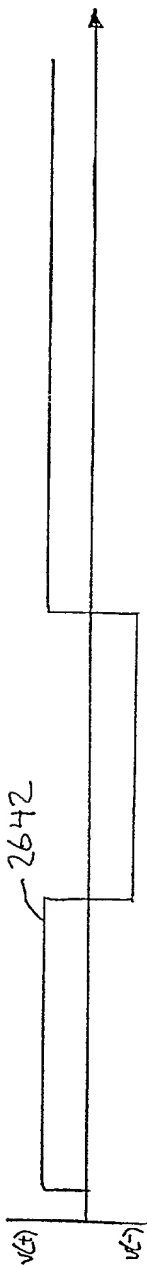


FIG. 26B

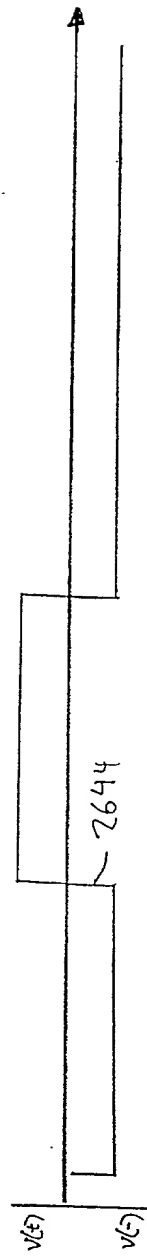


FIG. 26C

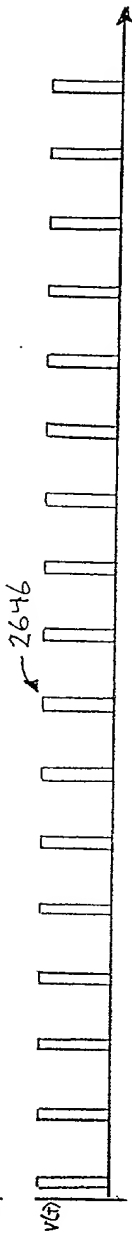


FIG. 26D

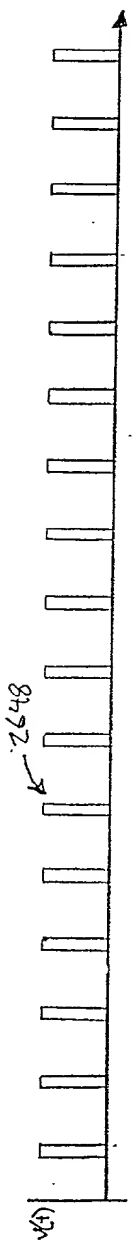


FIG. 26E

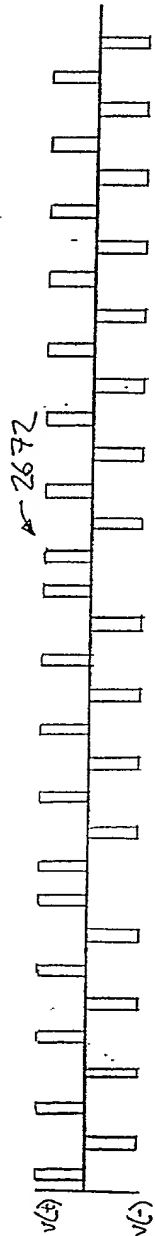


FIG. 26F

2702

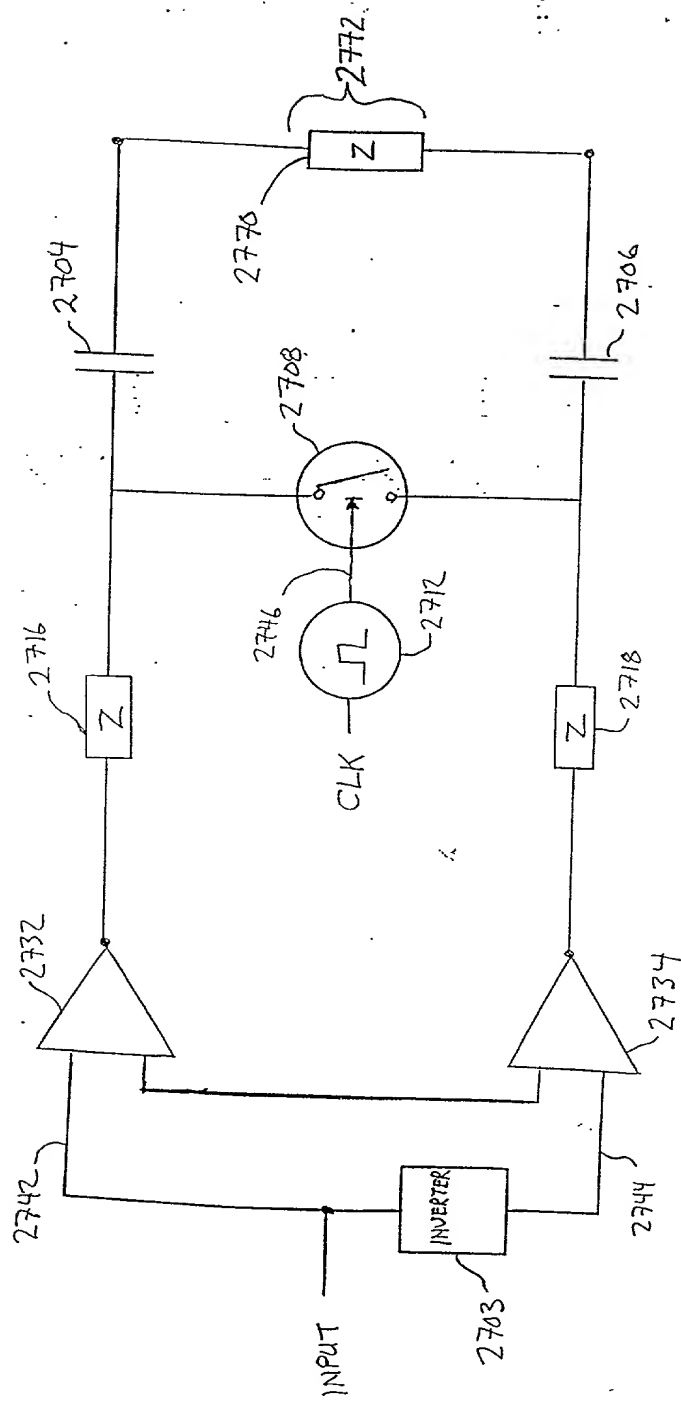
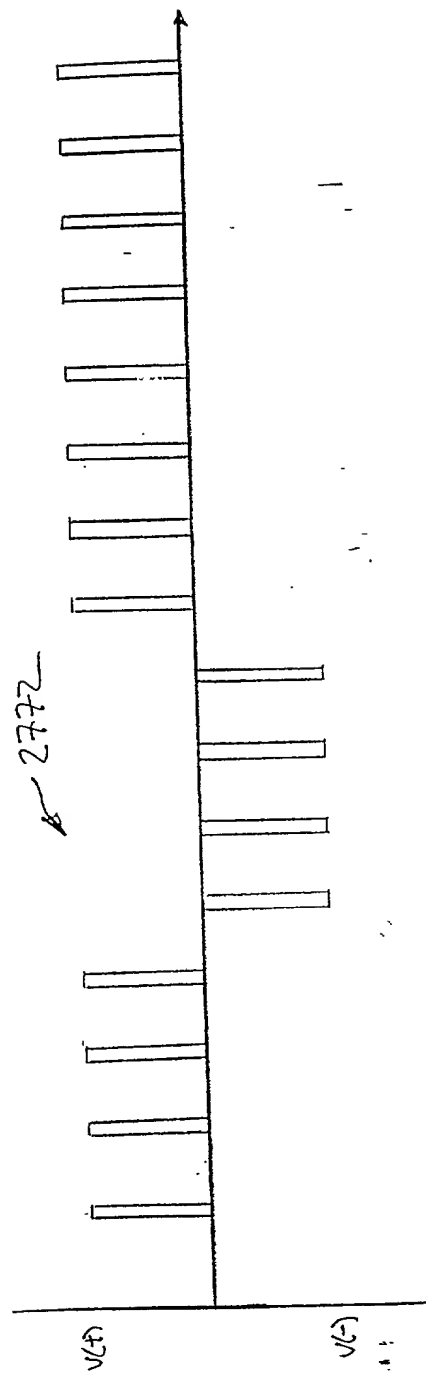
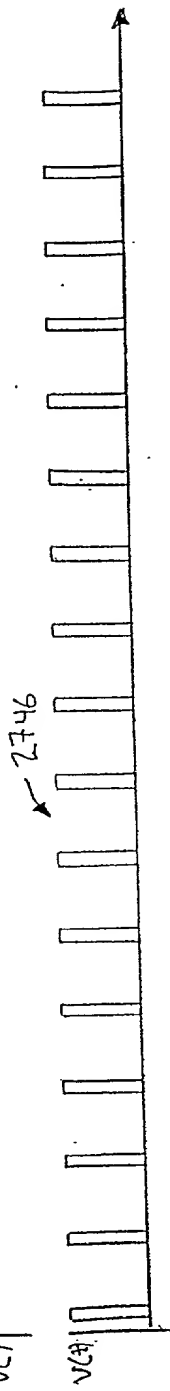
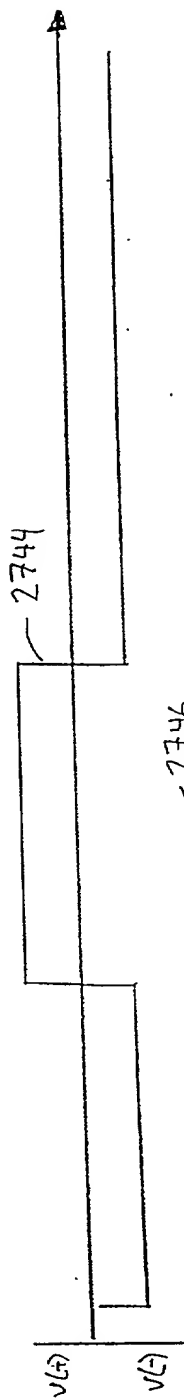
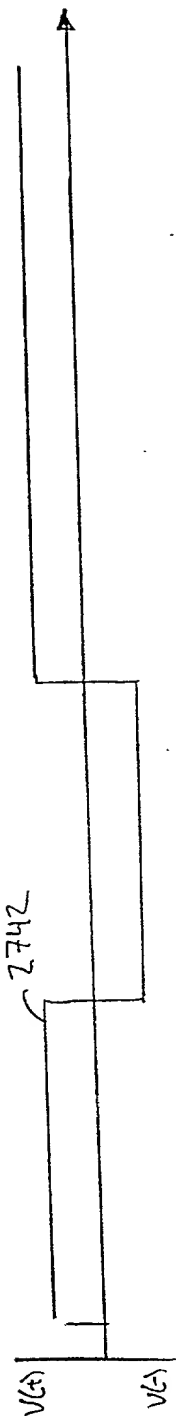


FIG. 27A



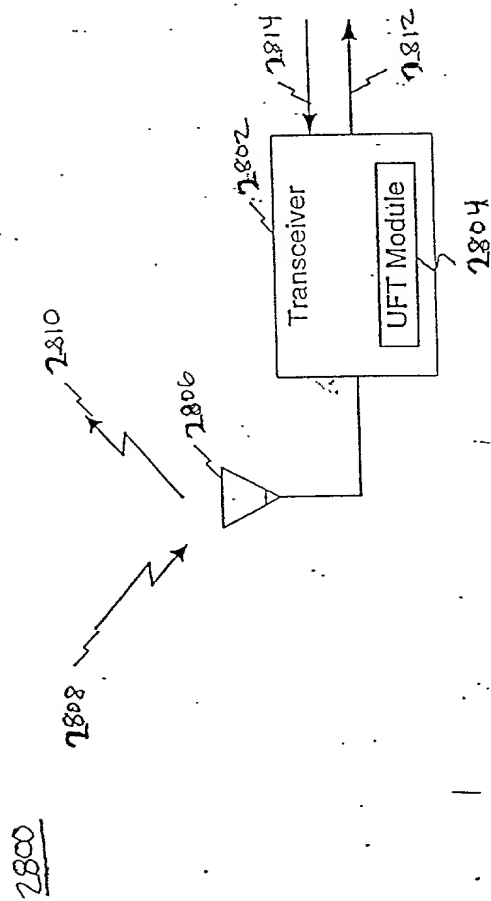
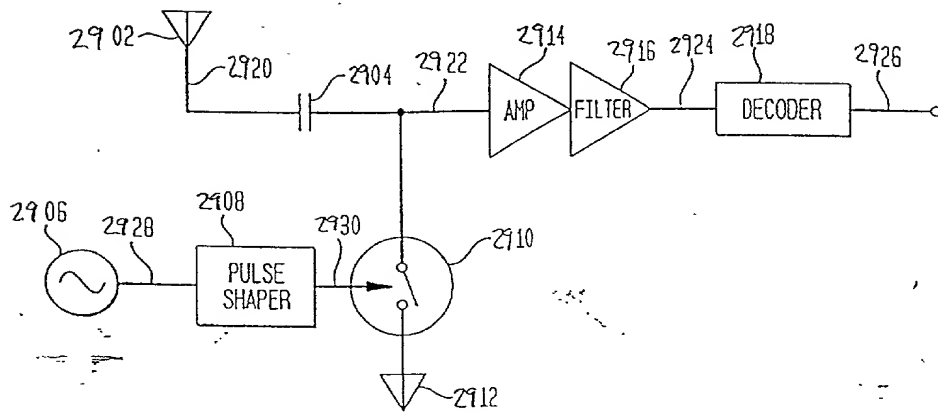


FIG. 28

FIG. 29

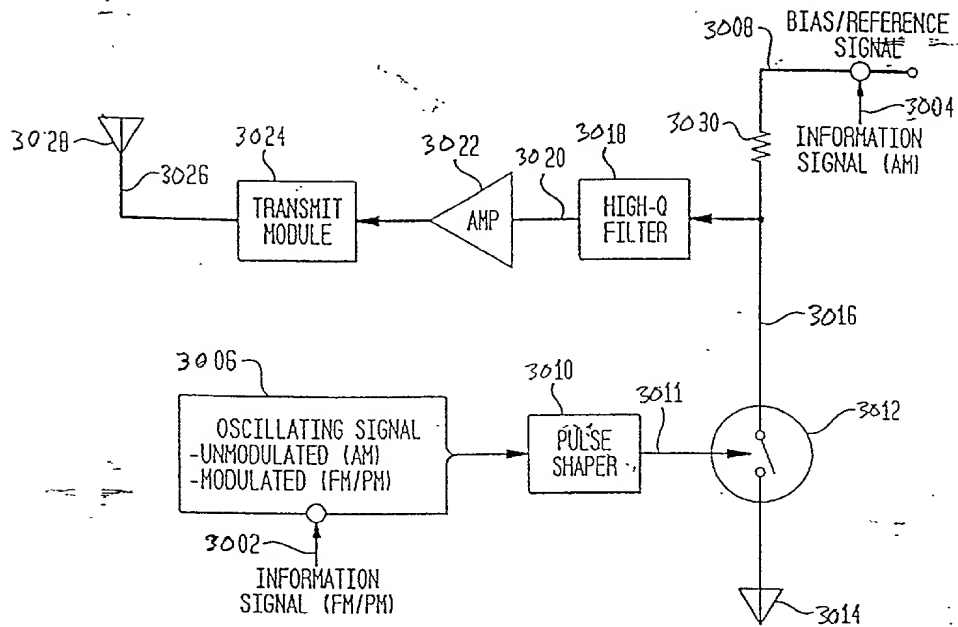
EXEMPLARY RECEIVER FOR
UNIVERSAL FREQUENCY DOWN-CONVERSION



0935351.051604

FIG. 30

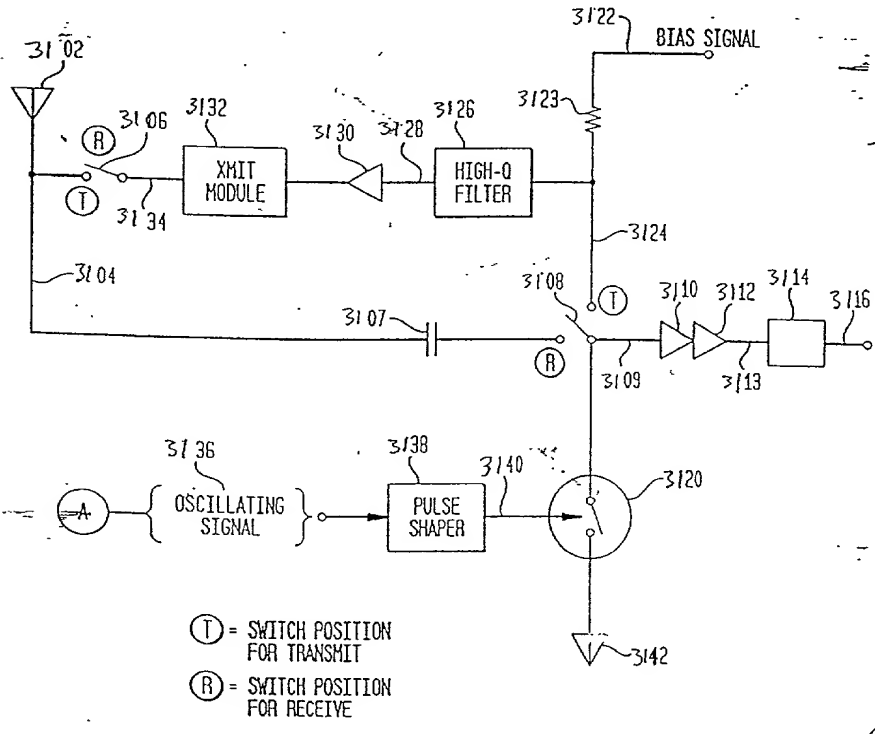
EXEMPLARY TRANSMITTER USING
THE PRESENT INVENTION



09855851.051601

FIG. 31A

TRANSMITTER USING PRESENT INVENTION IN A
HALF DUPLEX COMMUNICATIONS CIRCUIT WITH A
UNIVERSAL FREQUENCY DOWN-CONVERTER (FM & PM)



09855851.051604

FIG. 31B

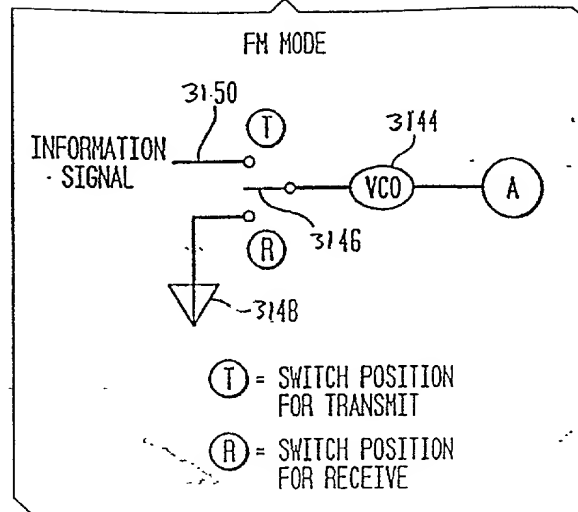
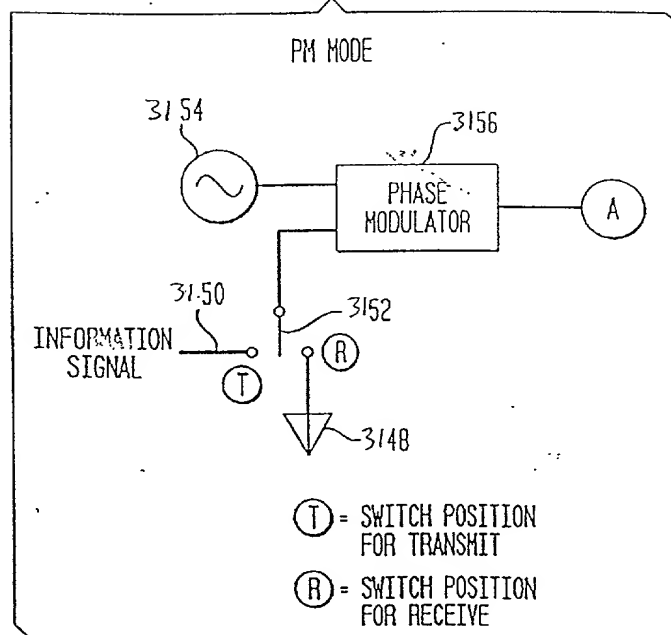


FIG. 31C



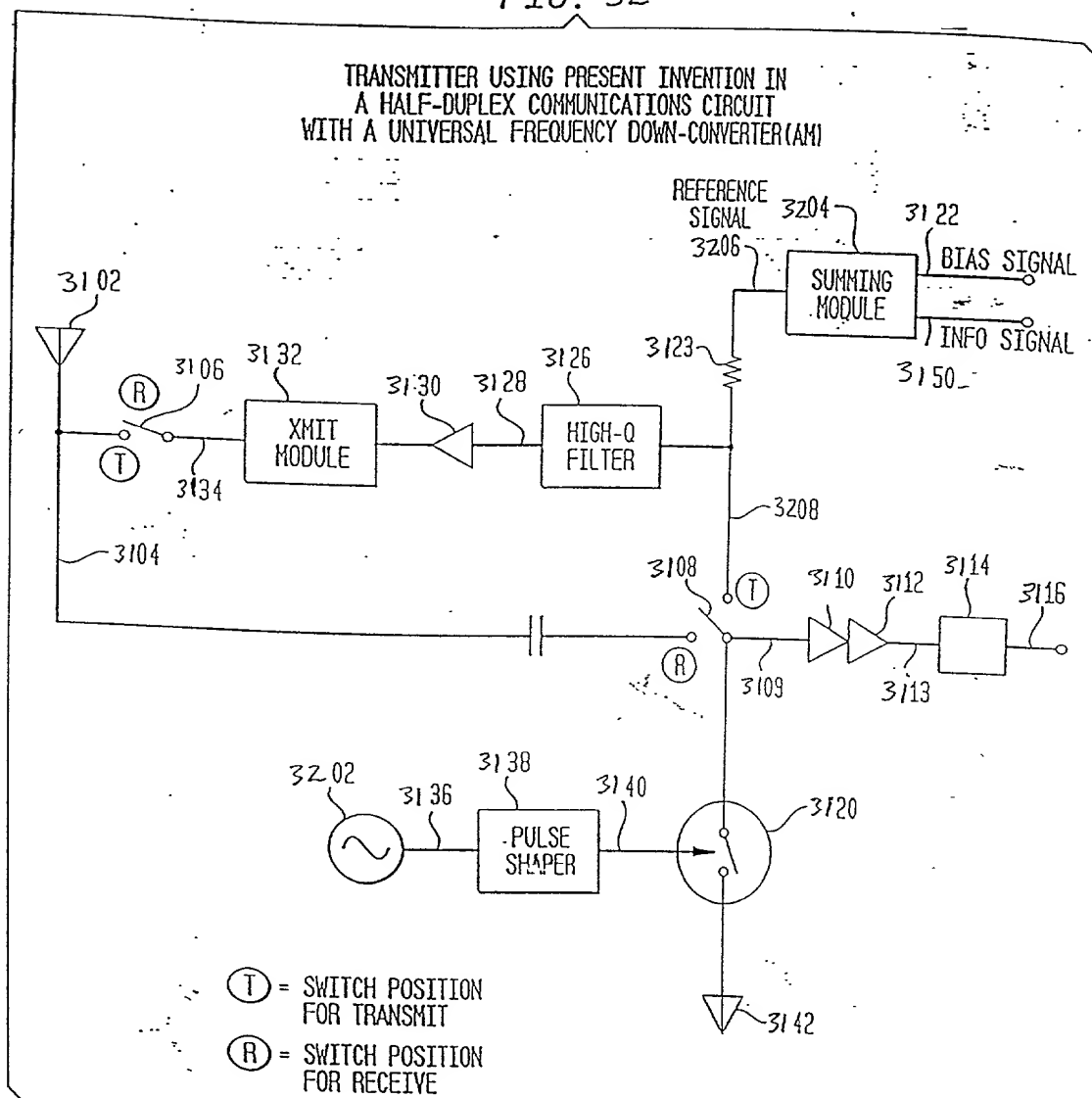
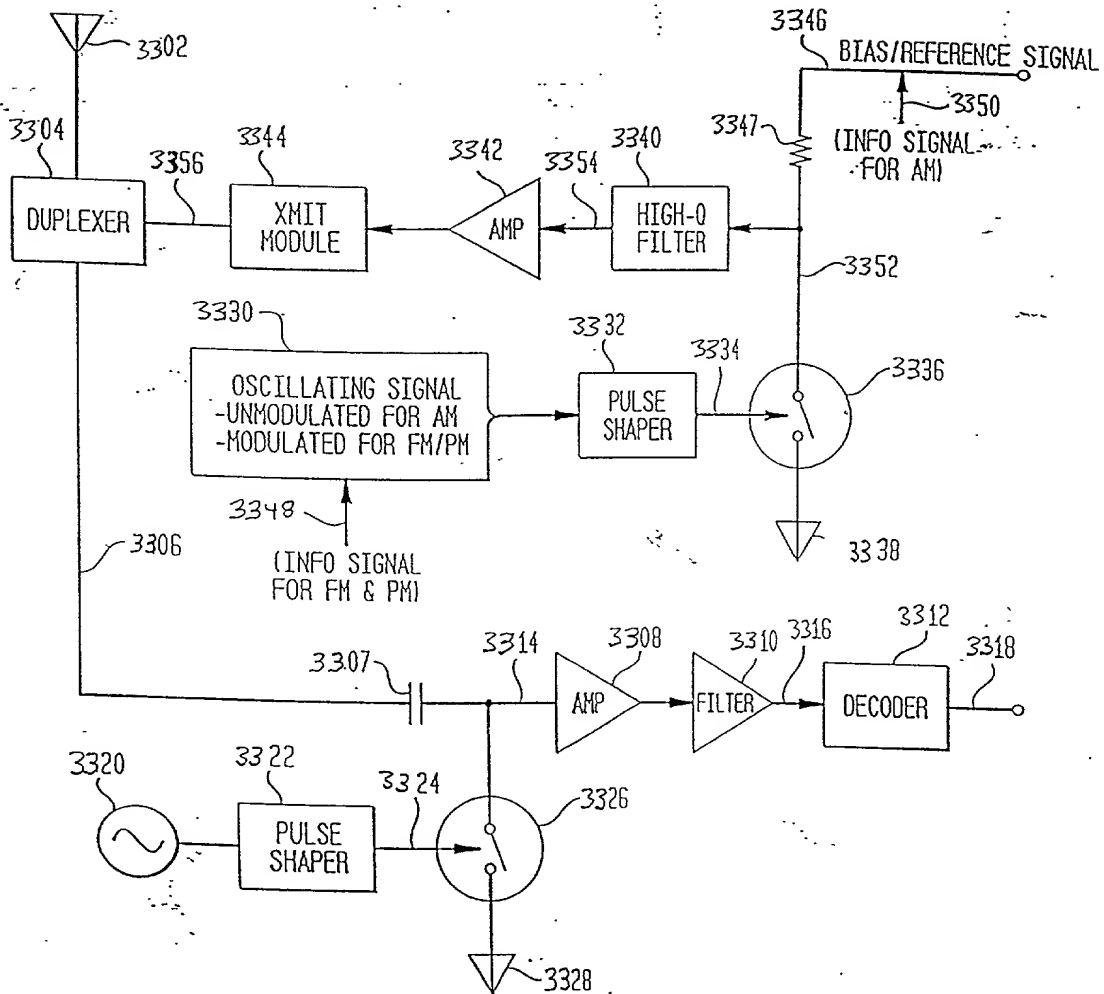
[illegible]

FIG. 33

TRANSMITTER USING PRESENT INVENTION IN
FULL DUPLEX COMMUNICATIONS CIRCUIT WITH
UNIVERSAL FREQUENCY DOWN-CONVERTER



09855851.051601

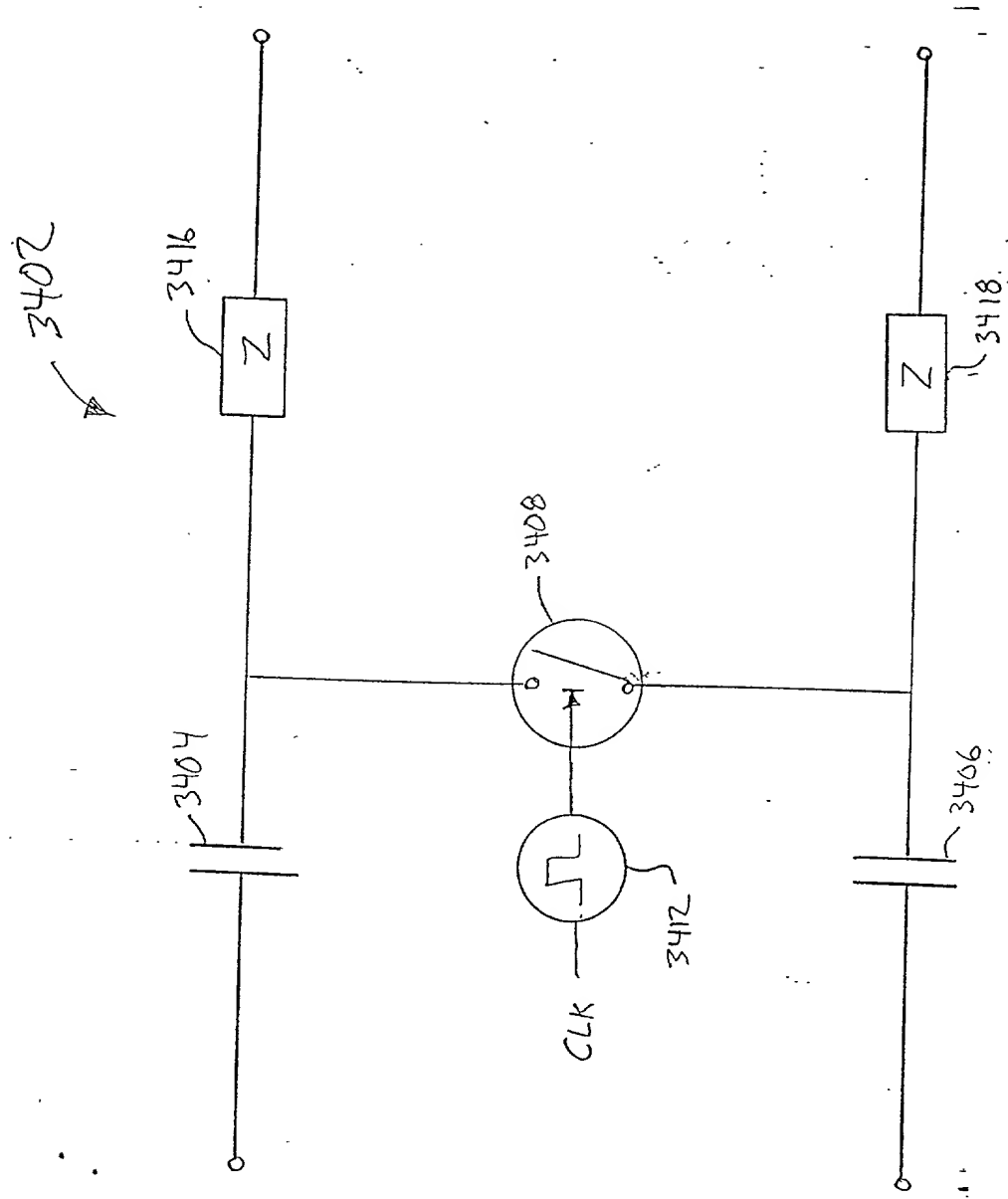


FIG. 34

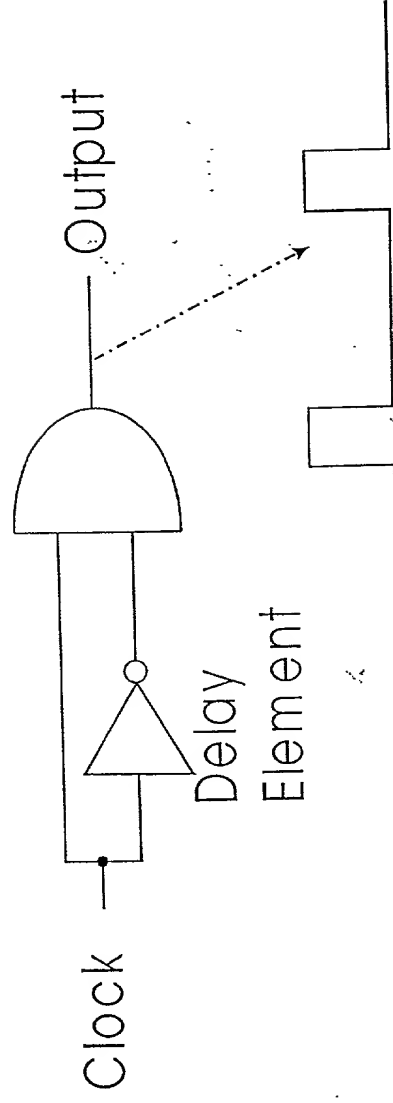


FIG. 35

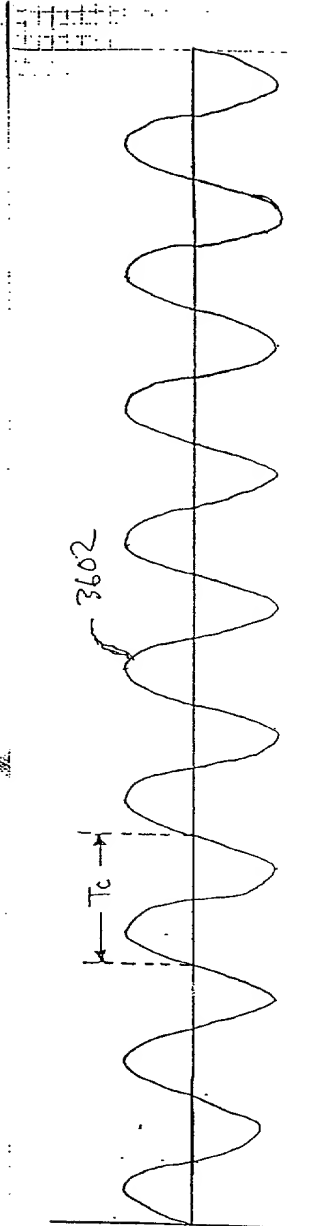


FIG. 36

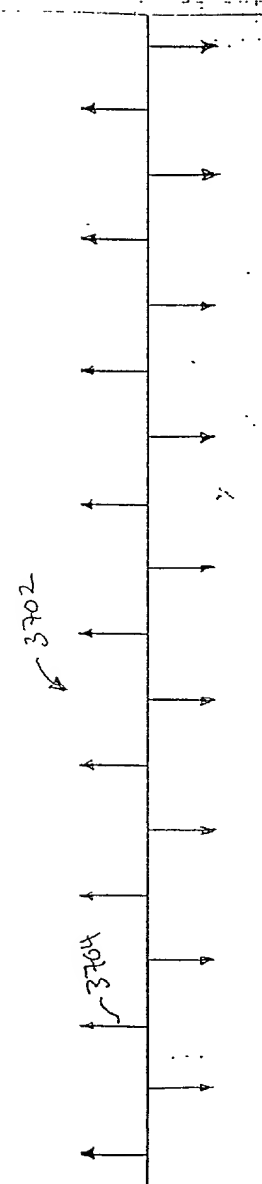


FIG. 37

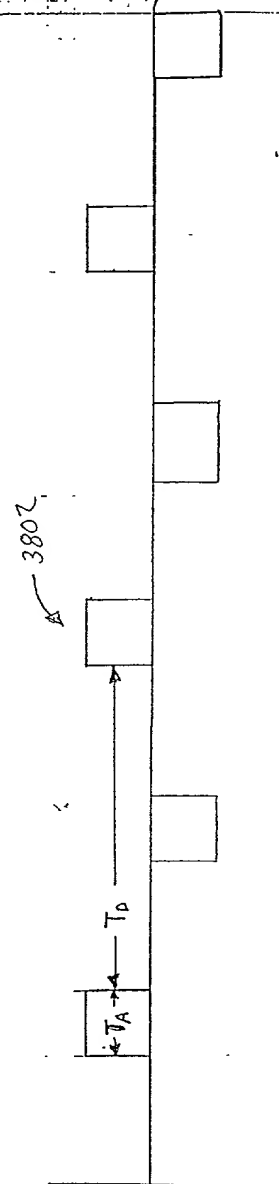


FIG. 38

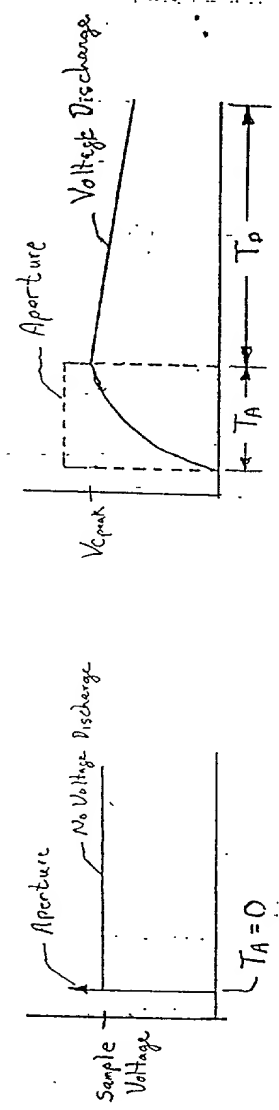


FIG. 39

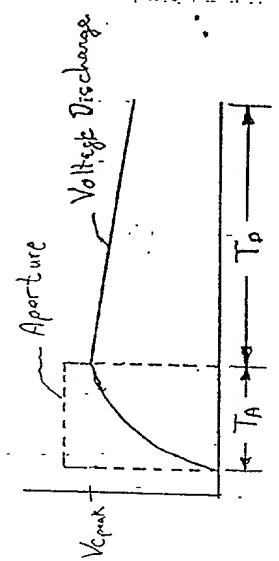


FIG. 40

109T50" T5855860

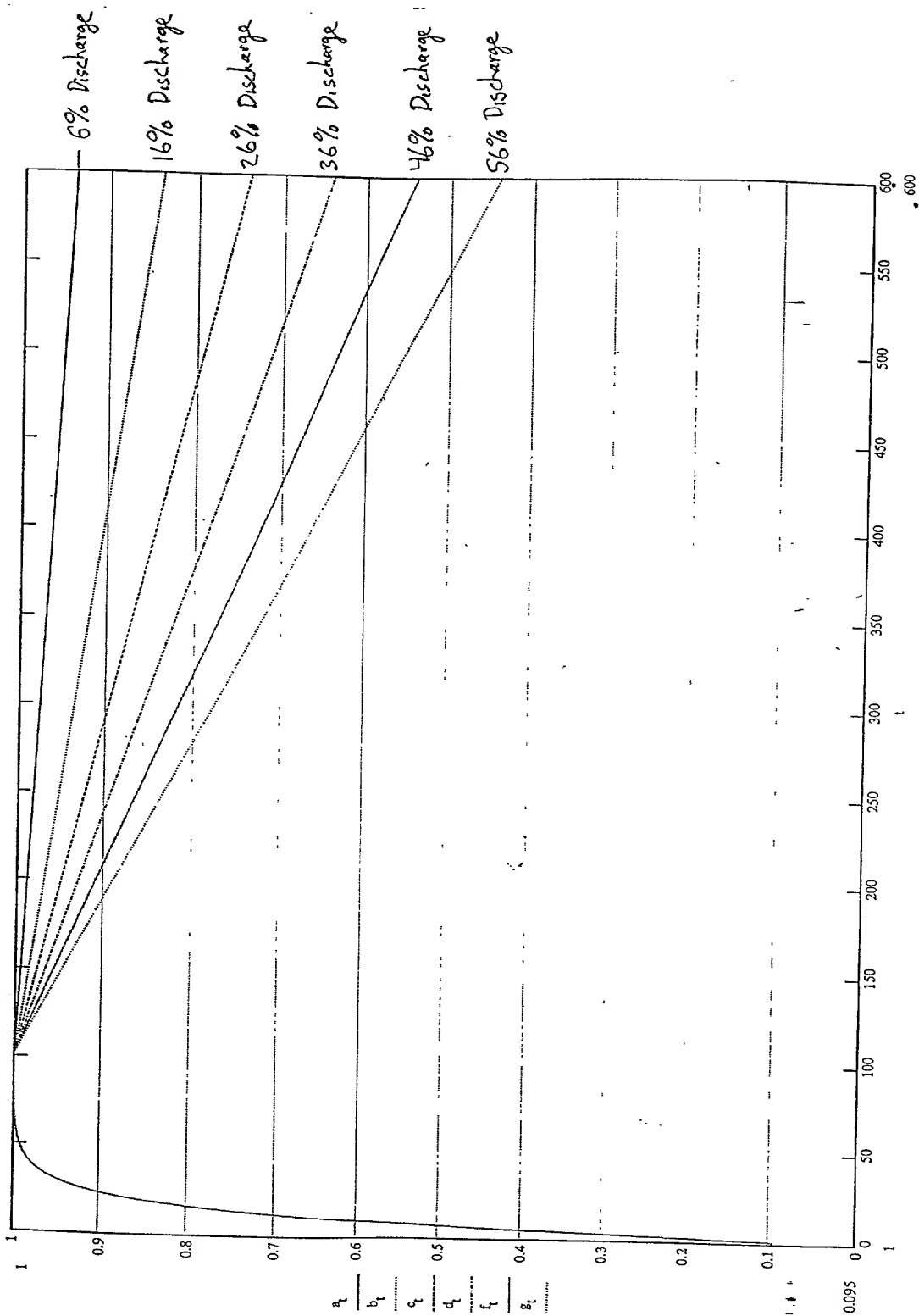


FIG. 41

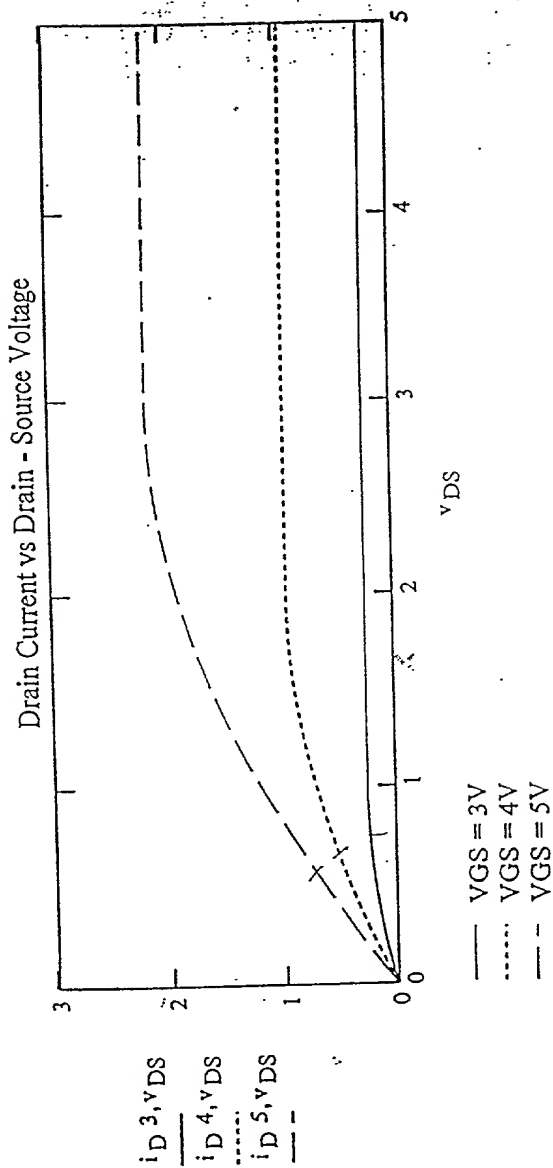


FIG 42

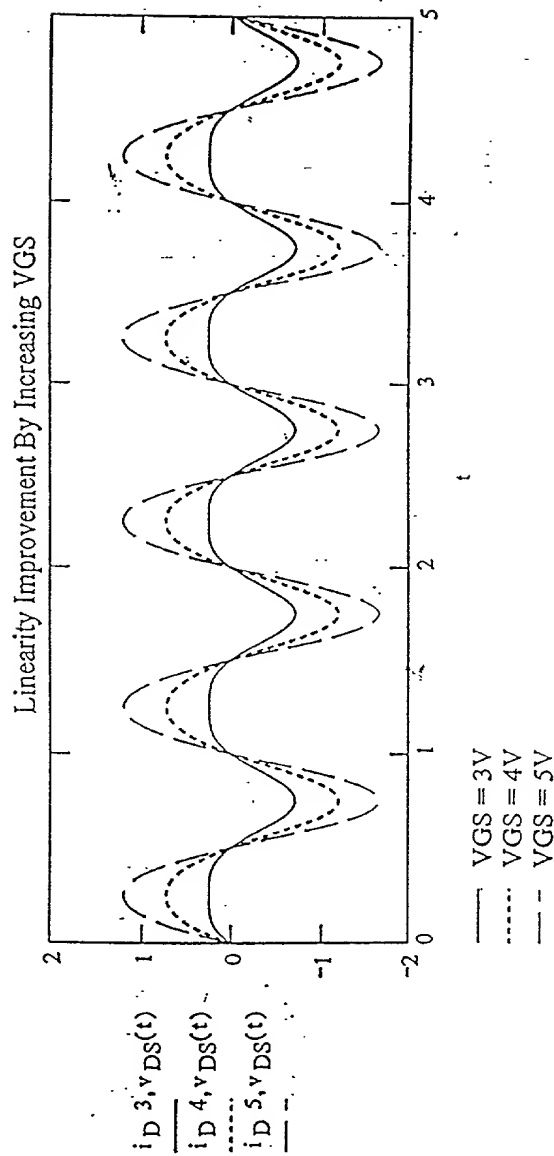


FIG. 43

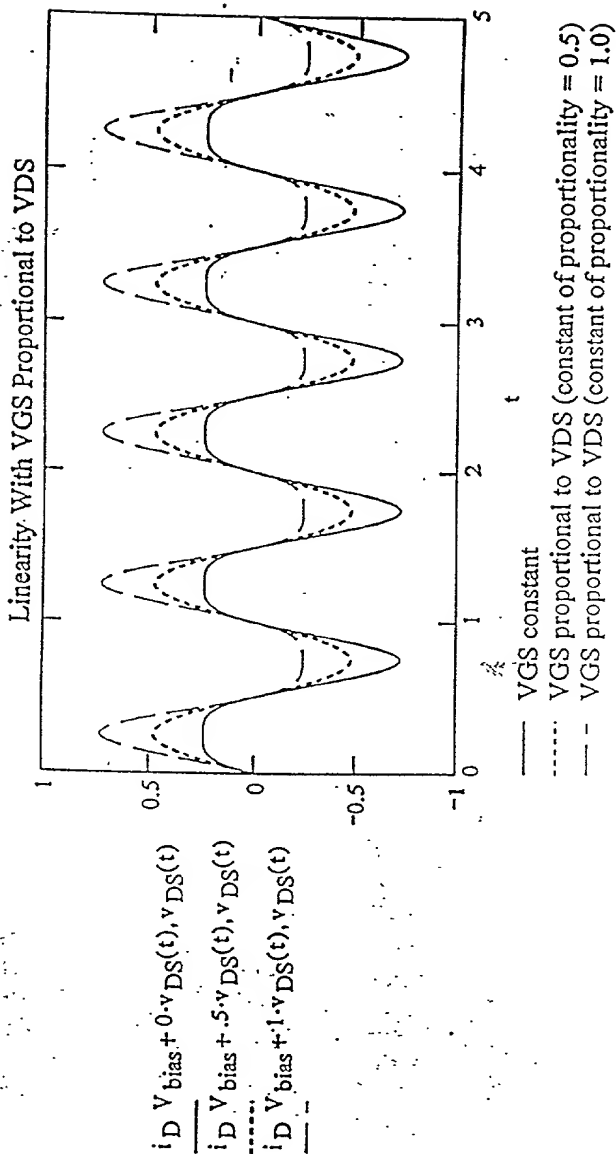


Fig 44

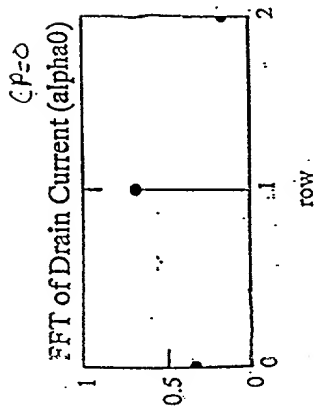


FIG. 45A

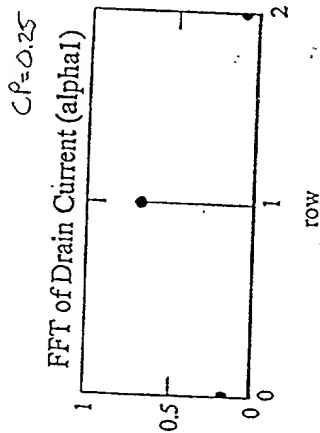


FIG. 45B

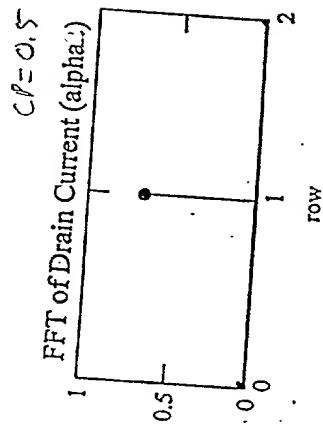


FIG. 45C

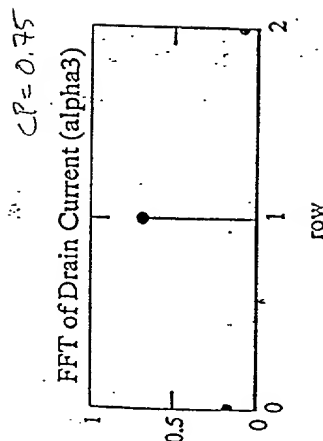


FIG. 45D

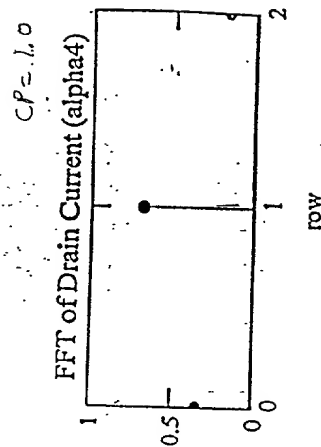


FIG. 45E

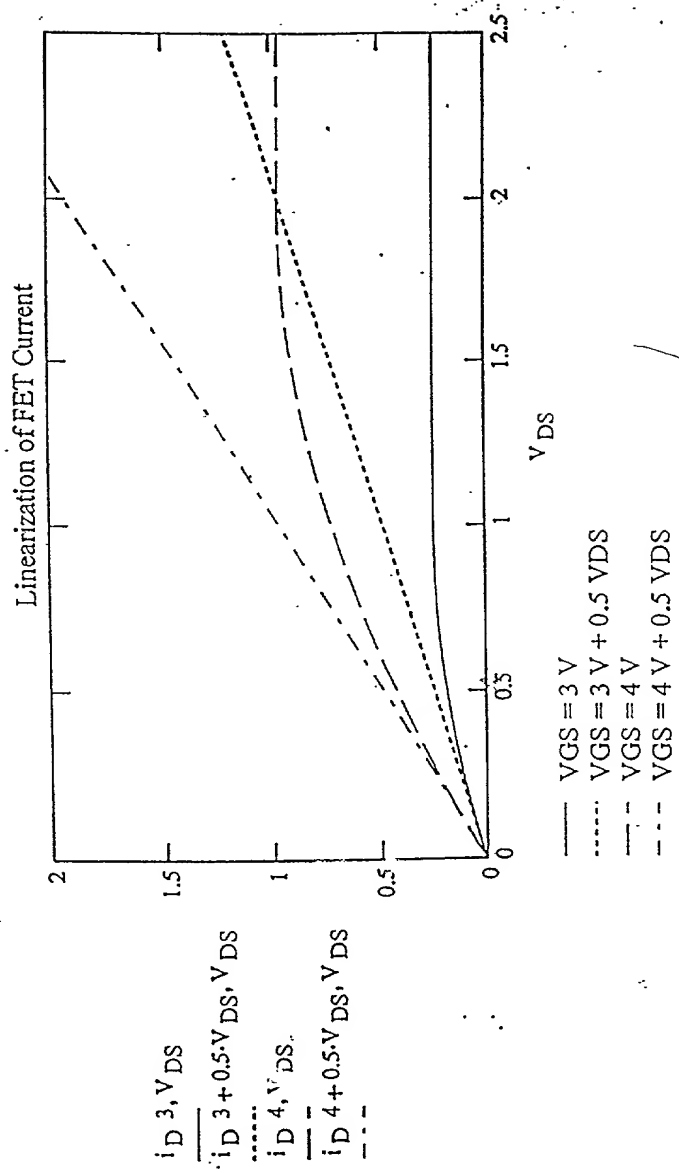


Fig. 46

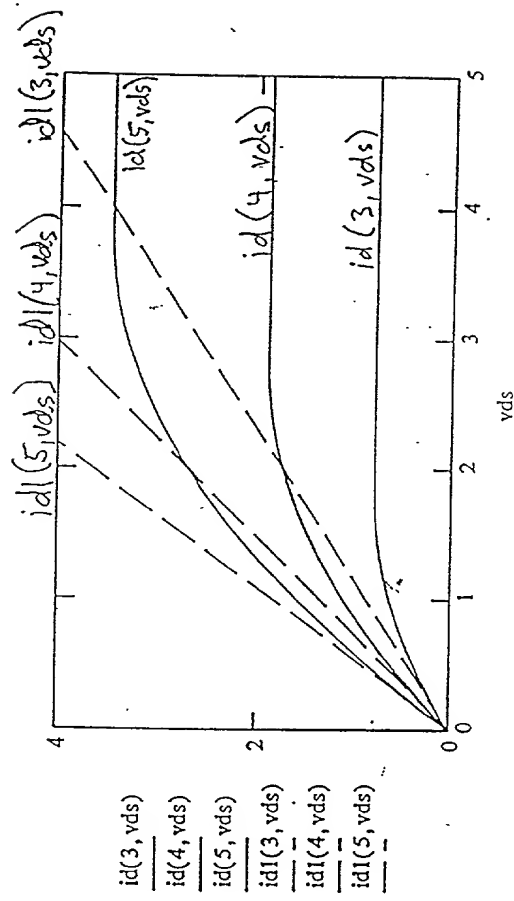
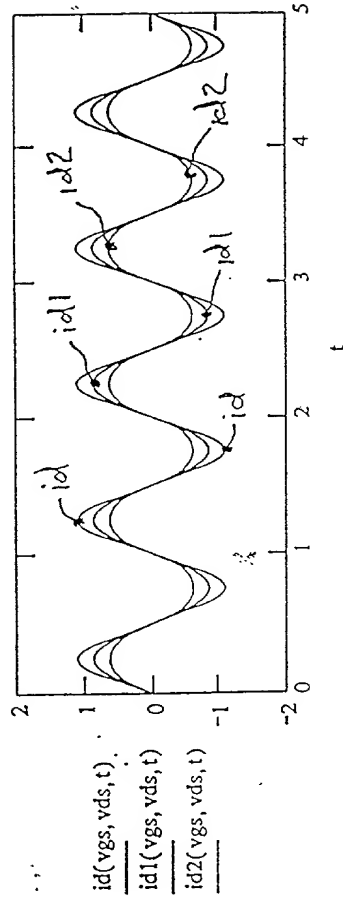


FIG. 47



F/G, 48

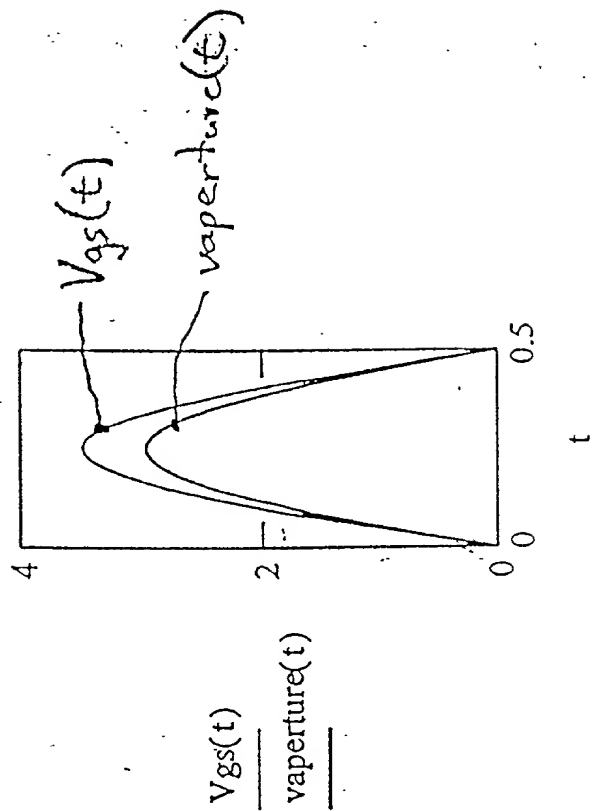


FIG. 49

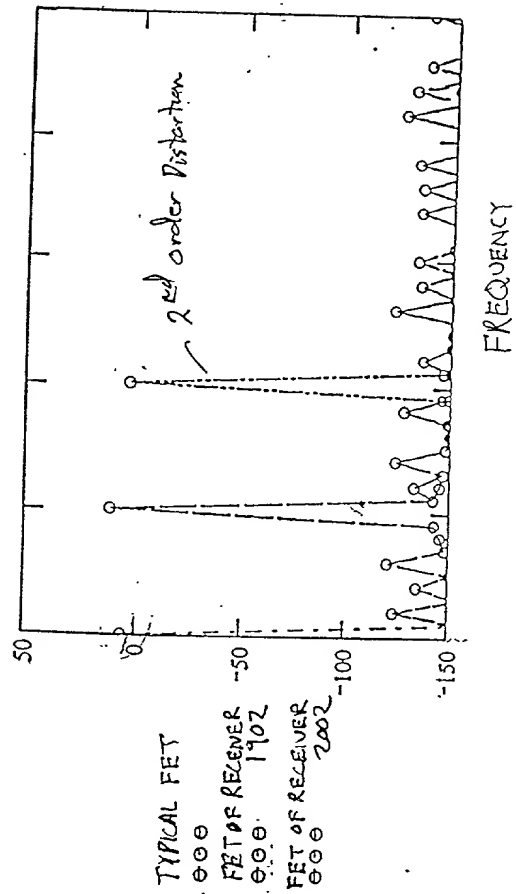


FIG. 50

0985851 051604

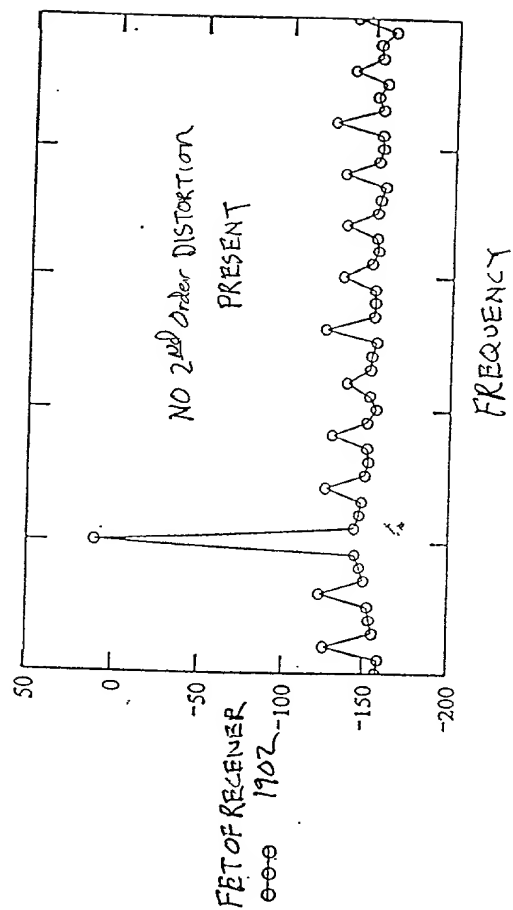


FIG. 51

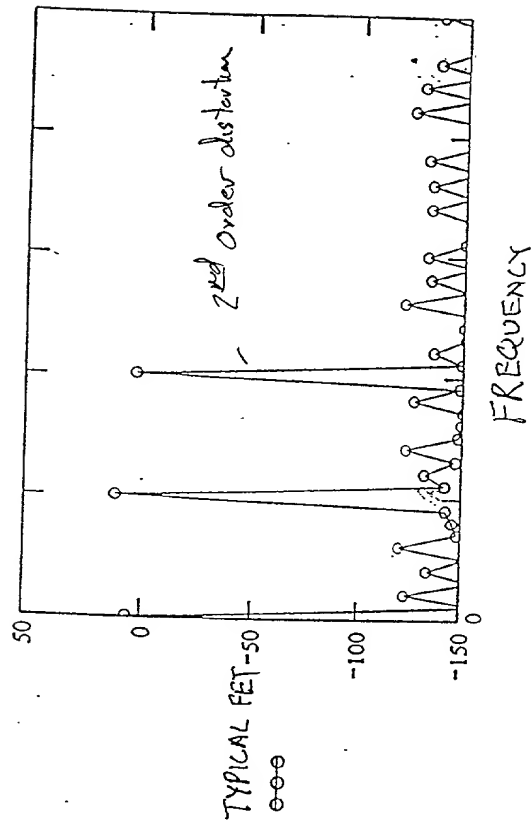


FIG. 52

0925251 051601

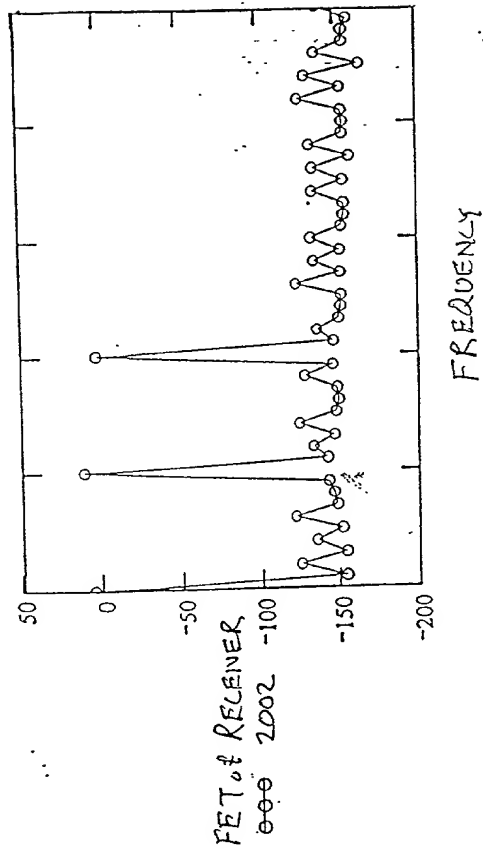


FIG 53

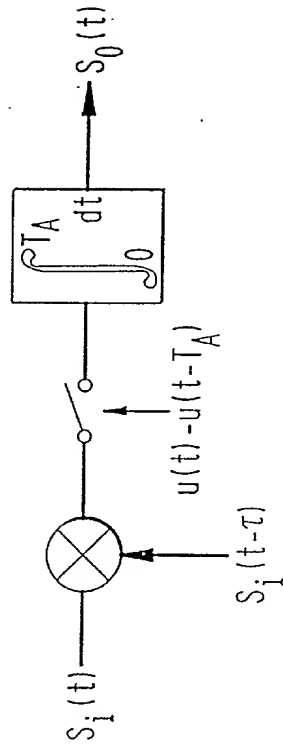


FIG. 54

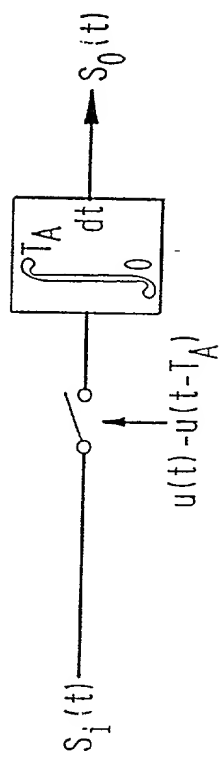


FIG. 55

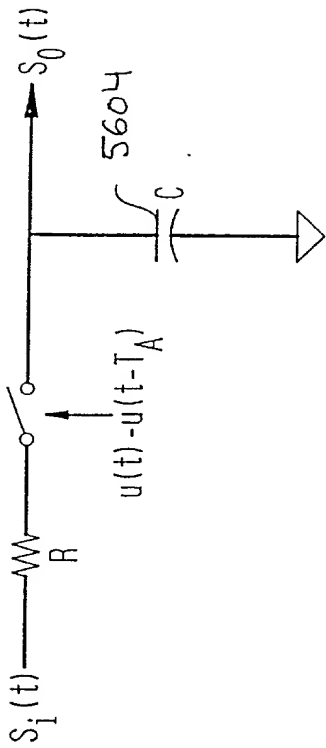


FIG. 56

UFT OUTPUT CHARGE TRANSFER

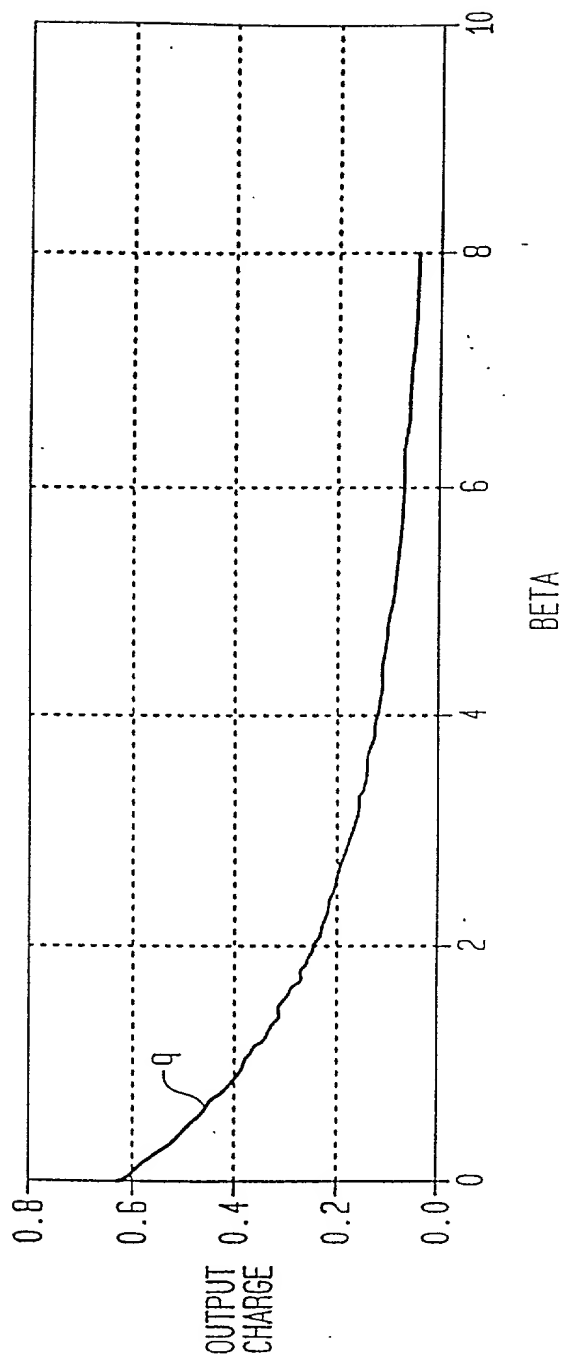


FIG. 57

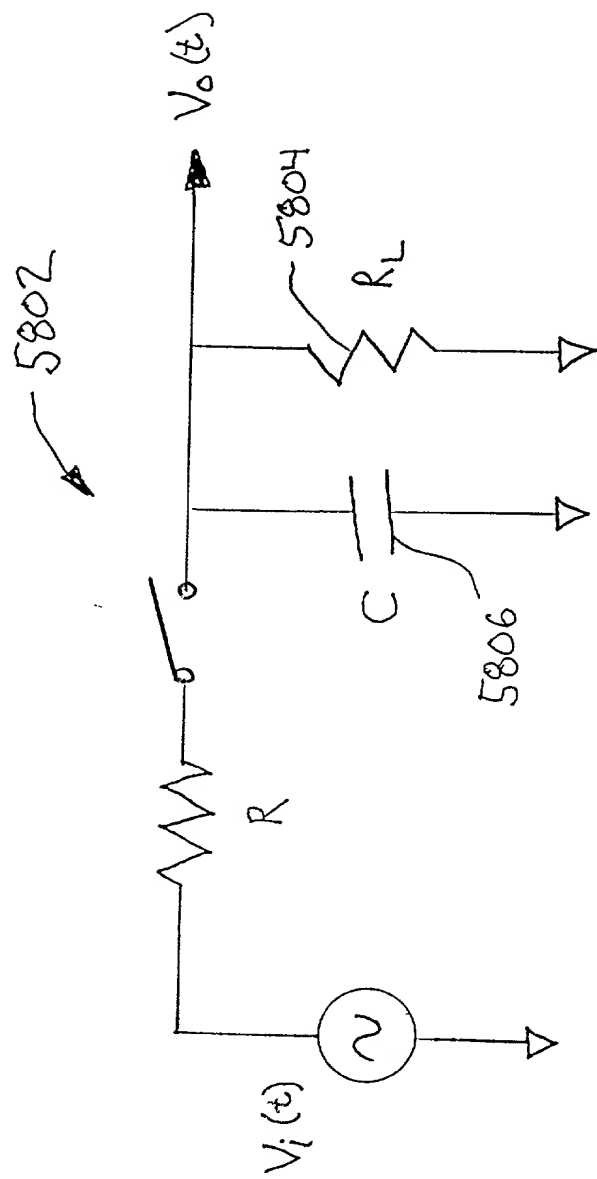


FIG. 58

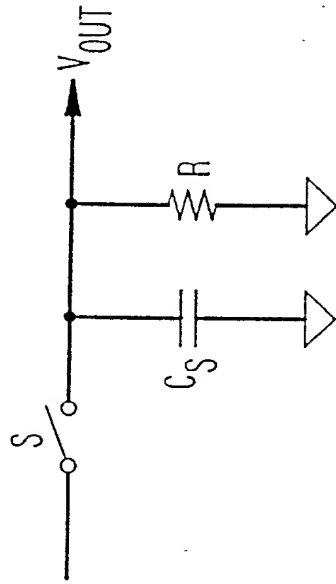


FIG. 59

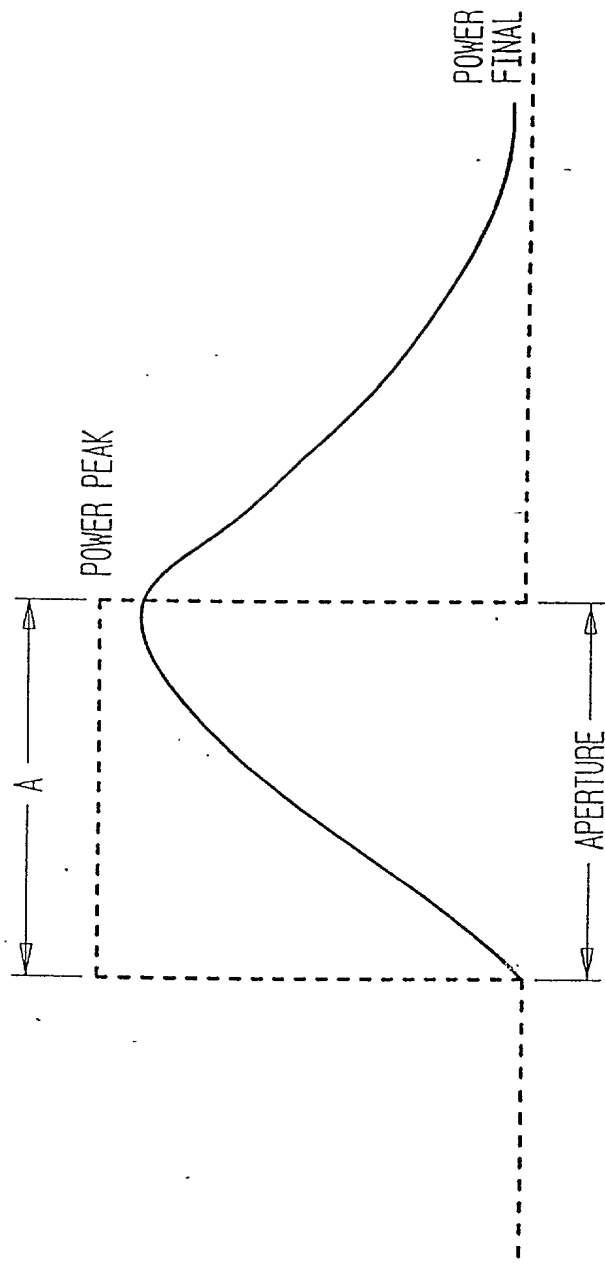


FIG. 60

0945554 051604

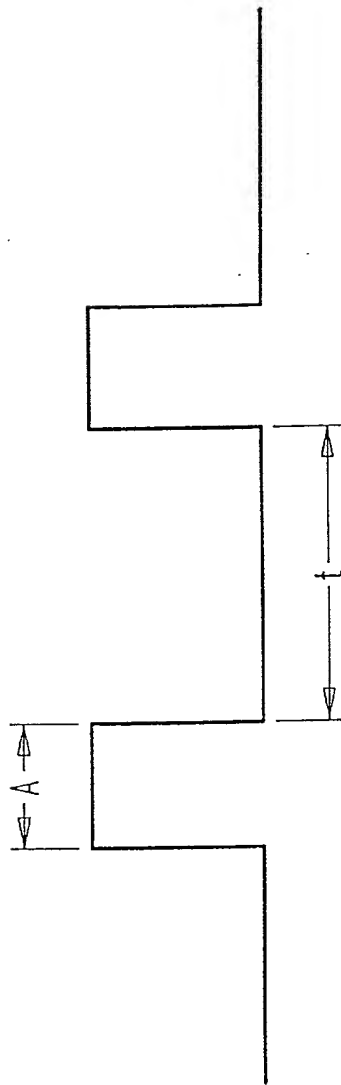


FIG. 61

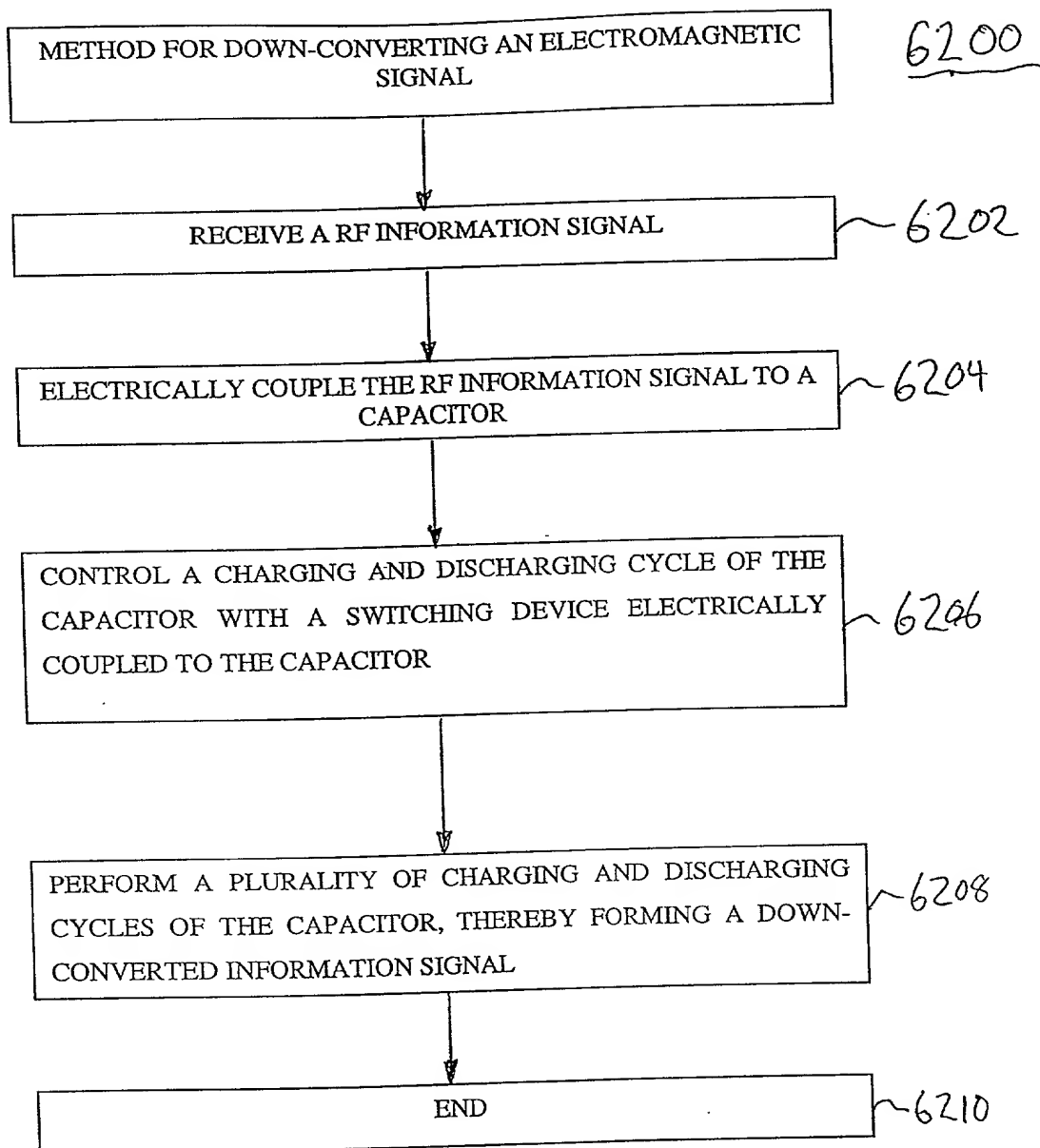


FIG 62